Displays

CyRAQ® 19H Series

19" Ultra-Bright NEMA 4X Flat Panel Monitors

For Rack, Panel, and VESA Mounting Systems with Optional *AR Bonding™ Technology*

USER'S MANUAL

VER. 1.0 • JULY 2014

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CyRAQ® CRBF 19H 19-inch Industrial LCD Monitor

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CyRAQ 19H		
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1 Introduction

Congratulations on your purchase of the most innovative and versatile Industrial LCD monitor available today—the **CYRAQ® 19H.** The CyberResearch® CYRAQ 19H uses a groundbreaking raised bezel design allowing the installation of a rugged 19″ flat panel display in a standard EIA 19″ rack! The engineers at CyberResearch have also designed mounting plates that allow the CYRAQ 19H to be *rack or panel-mounted* in either landscape or portrait orientation.

The CYRAQ 19H is extremely energy efficient—just 85W (max.) while active. The CYRAQ 19H LCD monitor emits very low radiation levels and virtually no electromagnetic field. Fully compatible with the PC and Macintosh, the CYRAQ 19H provides dual inputs (VGA and DVI) and is "Plug & Play" compatible. The On Screen Display menu provides users with an intuitive interface making it simple to quickly adjust the display.

The CYRAQ 19H can be panel, swivel-arm or rack mounted. It sets a new standard for clear, bright, flicker-free images and its NEMA 4X front bezel makes it ideal for use in industrial environments.

1.1 Why the CYRAQ® 19H?

The CYRAQ concept was conceived in the Engineering Department at CyberResearch as we began to examine how recent advances in LCD technology and image quality could potentially affect our market and customer base. The LCD monitor today provides viewing angles comparable to CRTs with no discernable loss of picture quality; as a result, an LCD provides crisp, clean, deep images WITHOUT screen glare. Coupled with a flat screen, slim design, extremely low radiation and almost no electromagnetic emissions, an LCD monitor provides distinct advantages to users in manufacturing, commercial and scientific applications.

Put simply, the innovation of the CYRAQ series is derived from its breadth and applications. Never before have the industrial and scientific markets been able to utilize large LCD monitors versatile enough to be rack, panel, or VESA-arm mounted yet robust enough to perform in harsh environments. The CYRAQ stainless-steel enclosure not only provides an unmatched degree of mechanical protection to the unit's components, its NEMA 4X rating makes it capable of sustaining normal operation while enduring screen washdown and other procedures commonly practiced in a harsh environment.

The CyberResearch, Inc. CYRAQ series displays have been engineered to couple with a revolutionary new mounting plate system that allows a user to install the CYRAQ display into a rack, or a panel without retrofitting disparate hardware, drilling holes, or welding mounting studs. The mounting plate systems make it a snap to install a CYRAQ into a standard 19″ rack, or panel-mount in any orientation.

Currently, the CYRAQ family is comprised of many models including displays featuring rear controls only, VESA mounting, choice of color and touchscreen (serial or USB available). Our CYRAQ family of LCD monitors includes a range of 6" to 32" monitors. All CyRAQ monitors feature corrosion-resistant industrial-duty stainless steel chassis and NEMA 4X sealed front bezels, ideal for washdown and other severe environments—please call us or visit our website for more information.

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1.2 CyberResearch® AR Bonding™ Technology

Standard LCDs used in bright ambient light may seem "washed out" because of excessive reflections from these lighting conditions. CyberResearch has developed a manufacturing technique that reduces ambient light reflection inside the display case, making our LCDs look brighter—even in direct sunlight.

CyberResearch now offers AR Bonding™ Technology on our entire line of signature CYRAQ® LCDs. This bonding both seals the display and significantly reduces the amount of reflected light. We've accomplished this with a high-quality bonding material that optically couples the front cover glass to the face of the LCD. This technique practically eliminates internal light reflection, which directly improves viewing quality.

Additionally, sealing the display with AR Bonding™ Technology greatly enhances its structural integrity, providing superior shock protection and eliminating any possibility of trapped moisture between the LCD and cover glass. This not only reduces troublesome fogging in humid and moist conditions, it keeps condensation and wetness away from your LCD.

Reducing the effect of ambient light reflection on your display can dramatically improve its performance! When AR Bonding™ Technology is applied to a 300 nit display, it increases the effective contrast and provides enhanced daylight viewing equivalent to that of a 500- or 600-nit display without AR Bonding™ Technology. Minimizing reflected ambient light from the display yields a discernable increase in display performance.

1.3 Specifications

Display		
Display Type		LCD flat panel
Video Input Types		Standard analog VGA (15-pin) DVI (Digital Visual Interface) S-video Composite
Screen Size (viewable area, diagonal)		19"
Display Filter Screen Size		19"
Display Brightness		300 nits (High-Bright)
Resolution, maximum		1280 x 1024 pixels
Touchscreen Capable		Yes
Screen Protection		Glass Anti-reflective coating
Display Details		• Anti-reflective bonding upgrade reduces glare in brightly lit areas • Optional touchscreen for keyboard-free data entry
Maximum Number of Colors		16 million colors
Maximum Color Depth in Bits		24-bit color
Contrast Ratio		2000:1
Aspect Ratio		5:4
Viewing Angle	° Horizontal	178°
	° Vertical	178°
Response Rate	Rise	15 ms
	Decay	5 ms
Touchscreen		
Touchscreen Type		5-Wire Resistive
Touchscreen Interface		USB or Serial
Light Transmittance of Touchscreen		80%
Touchscreen Manufacturer		Microchip Technology (Hampshire)
Touchscreen OS Support		Windows: 3, 95, 98, 2000, ME, XP, CE, Vista, 7, 8 MS-DOS Linux Macintosh 9.0 or higher
Touchscreen Resolution		4096 x 4096 points
Chassis		
Mounting Configuration		Panel-mount Rack-mount Swivel-arm mount
Protection Rating		IP66 (dustproof, strong jets of water) NEMA 4X sealed front panel
Front Panel Material		Stainless steel
Chassis Material		Stainless steel
Height, Rack Units		9U (15.75")
VESA Mounting Hole Pattern		100 x 100-mm VESA mounting holes
Chassis Details		• Corrosion-resistant enclosure and front bezel of heavy-duty stainless steel (304 SS) • Water-resistant sealed front panel suitable for washdown meets NEMA 4X standards when properly mounted • Mounts in a panel or on an arm or bracket in landscape or portrait mode • May be ordered with front or rear display controls • Mounting hardware, 6' power and VGA

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		cables included. 6' serial or USB cable included with touchscreen option
Controls		
Power On/Off Switch		1 on/off switch
OSD Controls		Sealed OSD controls for power and menu navigation (6 membrane keys)
Brightness		Via OSD controls
Contrast		Via OSD controls
Power Supply		
Power Supply Form Factor		External (fully enclosed)
Nominal Input Voltages		115/230 V_{AC}
Input Voltage Range		100~240 V_{AC}
Input Frequency		47~63 Hz
Maximum Input Current		1.9 A
Maximum Output Power		80 W @ 12 V_{DC}
Cable from Power Supply to Display		6 ft.
Power Consumption		
Power Consumption, typ. (power supply)		72 W
Cooling		
Cooling Summary		3 cooling fans
Cooling Fan Details (1)	Number of Fans of This Type	3
	Fan Size	60mm X 60mm
	Fan Location(s)	Rear
Air Filter Location		Rear
Environmental Specifications		
Operating Temperature		32~122°F (0~50°C)
Storage Temperature		-4~+140°F (-20~+60°C)
Relative Humidity, noncondensing		10~95%
Safety & Standards Compliance		
MTBF (average) -- LCD Display		50000 hours
MTBF (average) -- Display Backlight		50000 hours
Weight		
Weight		26.18lbs (11.87kg)
Display Filter Weight		Under 30 lbs.

Dimensions	
Raised-Bezel Models	
Width	19" (482.6mm)
Height	15.7" (398.78mm)
Depth (including handles)	3.1" (78.74mm)
Width, Rack-Mount	EIA standard 19 inches at flanges
Height, Rack Units	9U (15.75")
Depth Behind Panel	1.18" (29.97mm)
Protrusion from Rack (including handles)	1.75" (44.45mm)
Panel-Mount Cutout, Width	17.4" (441.96mm)
Panel-Mount Cutout, Height	14" (355.6mm)
Dimension Details	• Bezel protrusion in Front of Panel: 1.5" • Gasket Depth: 0.25" • Mtg Adapter Plate Depth: 0.1" • Height in Portrait View: 19.2" (11U)

Flush Bezel Panel-Mount Models	
Width	1.67ft (508mm)
Height	16.7" (424.18mm)
Depth (including handles)	3.3" (83.82mm)
Depth Behind Panel	3.1" (78.74mm)
Protrusion from Rack (including handles)	0.2" (5.08mm)
Panel-Mount Cutout, Width	19.1" (485.14mm)
Panel-Mount Cutout, Height	15.8" (401.32mm)
Dimension Details	Front Bezel Thickness: 0.2"

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1.4 Features

1.4.1 Overview

The CyberResearch CYRAQ® 19H is a 19-inch analog/digital LCD monitor that offers the highest quality images possible with analog and digital dual source input. Its Dual input (VGA and DVI) allow users to connect two different input sources simultaneously. The CYRAQ 19H offers a 600:1 contrast ratio, pixel pitch of 0.29mm 160°/160° viewing angle, Analog/Digital/Composite/S-video inputs, a scanning frequency of 31~81 kHz (analog), 30~63 kHz (digital) horizontal and 56~75 Hz vertical (analog & digital), and advanced image scaling.

- 19" Viewable Screen Size
- Breakthrough Universal Mounting Plate allows the CYRAQ 19H to mount in a 19″ Rack
- VGA (15-Pin) and Digital (DVI)
- Composite and S-Video Inputs
- NEMA 4X Rating
- Rack, Panel, or Swivel-Arm Mounted

1.4.2 System Requirements

To achieve optimum response time the CYRAQ requires a computer with CPU speeds of 486 or higher. The CYRAQ is compatible with Windows and Macintosh operating systems. To operate the display at its highest resolution a video card that supports 1280 x 1024 pixels is required. See our catalog or website (www.cyberresearch.com) for compatible video cards.

2 Setup

2.1 Unpacking the CYRAQ® 19H

Before unpacking it is very important to locate your CYRAQ monitor in a suitable environment. Make sure the installation location has good ventilation, is out of direct sunlight, away form excessive dust, dirt, heat, water, moisture and vibration. Please see Specifications section for environmental details.

2.1.1 Your Package Contains:

1) A CYRAQ Series Display
2) The CYRAQ® Series Drivers & Manuals CD
3) 6-ft. Power Cable
4) 6-ft VGA and DVI cables
5) User's Manual
6) Universal Mounting Plate **CRMS UNL** (applies to landscape rack-mount and panel-mount applications only) or portrait mounting plate **CRMS POR** (applies to portrait Rack-Mount applications)
7) Eight Button Head Mounting 10-32 X 1/2″ Bolts
8) Fourteen 10-32 1/2″Mounting Nuts
9) **Flush Panel-Mount models** come with **10 Mounting Clamps** *in lieu of* CRMS UNL or CRMS POR, 10-32 1/2″mounting bolts and 10-32 nuts.

Panel PC Owners:
If display is part of a CYRAQ Panel PC system, package contents will vary from list shown at left. See "Included with CYRAQ® PPC" in Panel PC user manual for a complete list of Panel PC package contents.

2.1.2 Optional Accessories:

1) Longer VGA and DVI cables (call for available lengths)
2) Touchscreens are available for all models
3) SWC 100 VESA mounting plate for VESA mount models

NOTE: If any of these items are missing or damaged contact CyberResearch, Inc. immediately

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2.2 Rack Mounting Raised-Bezel Models

✓ If unsure of mounting method, check package contents: If your package contains mounting clamps illustrated in Figure 5, Figure 6 and Figure 7, follow mounting instructions in Panel Mounting Flush-Bezel Models.

IMPORTANT! Ask yourself these questions before beginning installation:

1. Is sufficient power available?
2. Is sufficient space available to allow for proper airflow both inside and around the display?
3. Is there a possibility the air temperature inside the rack will exceed the CYRAQ® 19H's rated specification? (Operating temperature: 32°F....122°F ((0°C....50°C).)

NOTE: Though this product is designed to operate up to 122°F (50°C) with proper ventilation, the life span of electronic devices can be shortened when consistently operated at high temperatures—keep rack temperature as low possible

4. Is there a possibility that the ambient humidity around the display will exceed its rated specification? (Relative Humidity, non-condensing: 10%....95%.)

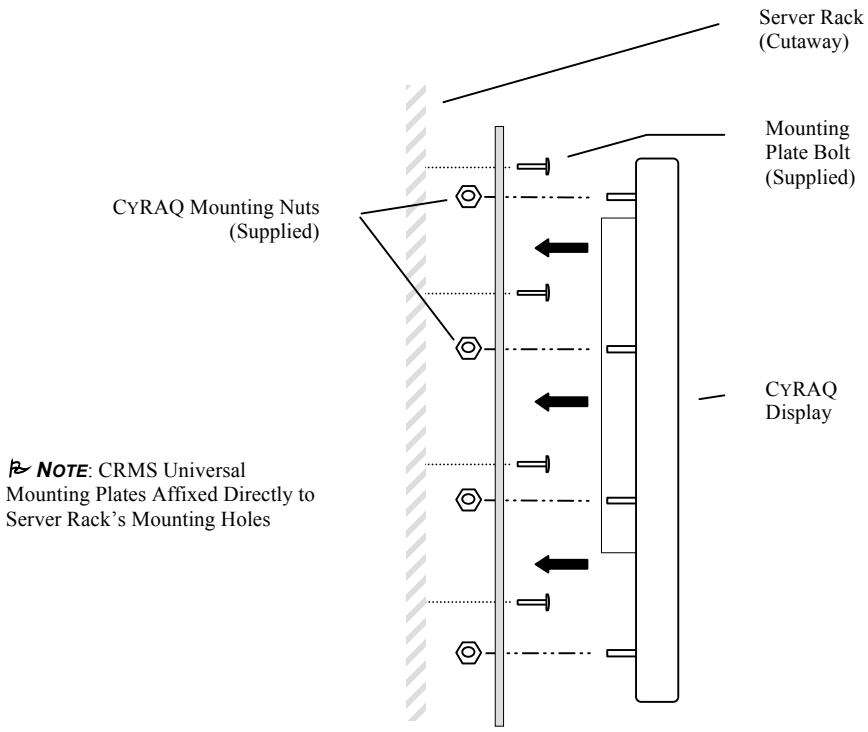

Figure 1: Installation Assembly

2.2.1 Landscape Orientation

NOTE: Follow Section 2.2.2 Portrait Orientation, if requested at time of order.

1. Align mounting plate rack-mount holes with server rack mounting holes; see Figure 2 for correct mounting orientation. ***Ensure gasket faces outward***.
2. Install the eight 10-32 x 1/2″ button head bolts into rack-mounting holes to secure mounting plate to the server rack.

NOTE: Steps 3 & 4 require two people.

3. Align studs with the monitor mounting holes in mounting plate and install the CYRAQ® until the gasket is flush with rear of enclosure.

Important!
Do not exceed 30 in/lbs when tightening mounting nuts.

4. From inside rack, a second person must install and tighten the fourteen 10-32 mounting nuts.

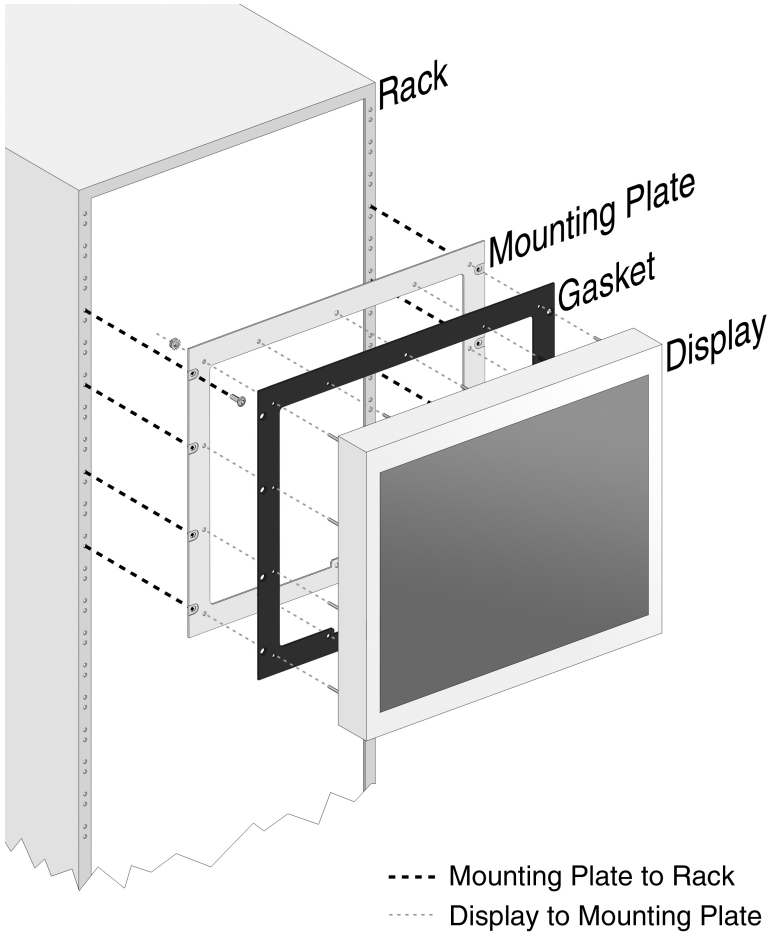

Figure 2: Landscape Installation Illustration

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2.2.2 Portrait Orientation

NOTE: Portrait mounting orientation requires 11U (19.2″) free rack space.

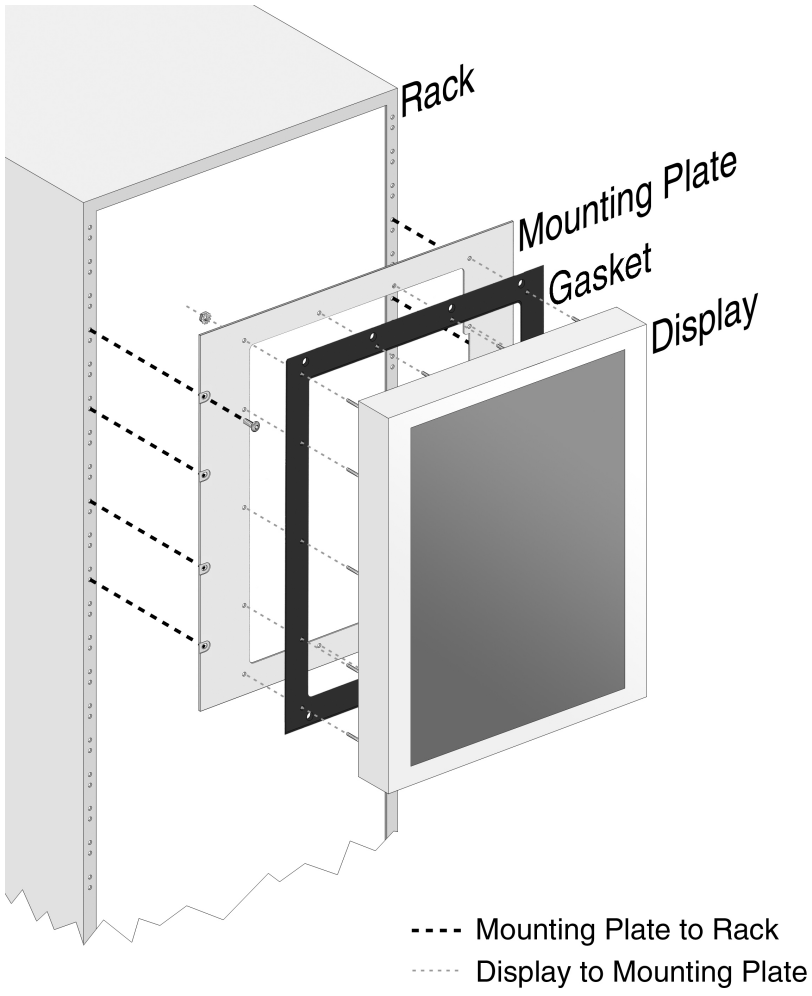
1. Align mounting plate rack-mount holes with server rack mounting holes; see Figure 3 for correct mounting orientation. ***Ensure gasket faces outward***.
2. Install the eight 10-32 x 1/2″ button head bolts into rack-mounting holes to secure mounting plate to the server rack.

NOTE: Steps 3 & 4 require two people.

3. Align studs with the monitor mounting holes in mounting plate and install the CYRAQ® until the gasket is flush with rear of enclosure.

Important!
Do not exceed 30 in/lbs when tightening mounting nuts.

4. From inside rack, a second person must install and tighten the fourteen 10-32 mounting nuts.



2.3 Panel Mounting Raised-Bezel Models

2.3.1 Panel Mounting the Monitor

1. Ensure the cutout meets the suggested dimensions: 441mm (17.4") W x 356mm (14") H for standard installation (see
2. Figure 4), 356mm H x 441mm W for portrait installation.
3. Install CYRAQ® in panel cut out. Ensure all studs clear cutout opening and gasket on the rear of the unit is flush against panel (critical for NEMA compliance).

NOTE: Steps 3 & 4 require a second person

4. Align studs on the CYRAQ with the holes in mounting plate from rear of panel (as seen in
5. Figure 4).

Important!
Do not exceed 30 in/lbs when tightening mounting nuts.

6. Also from rear of the panel, second person must install and tighten the fourteen 10-32 mounting nuts.

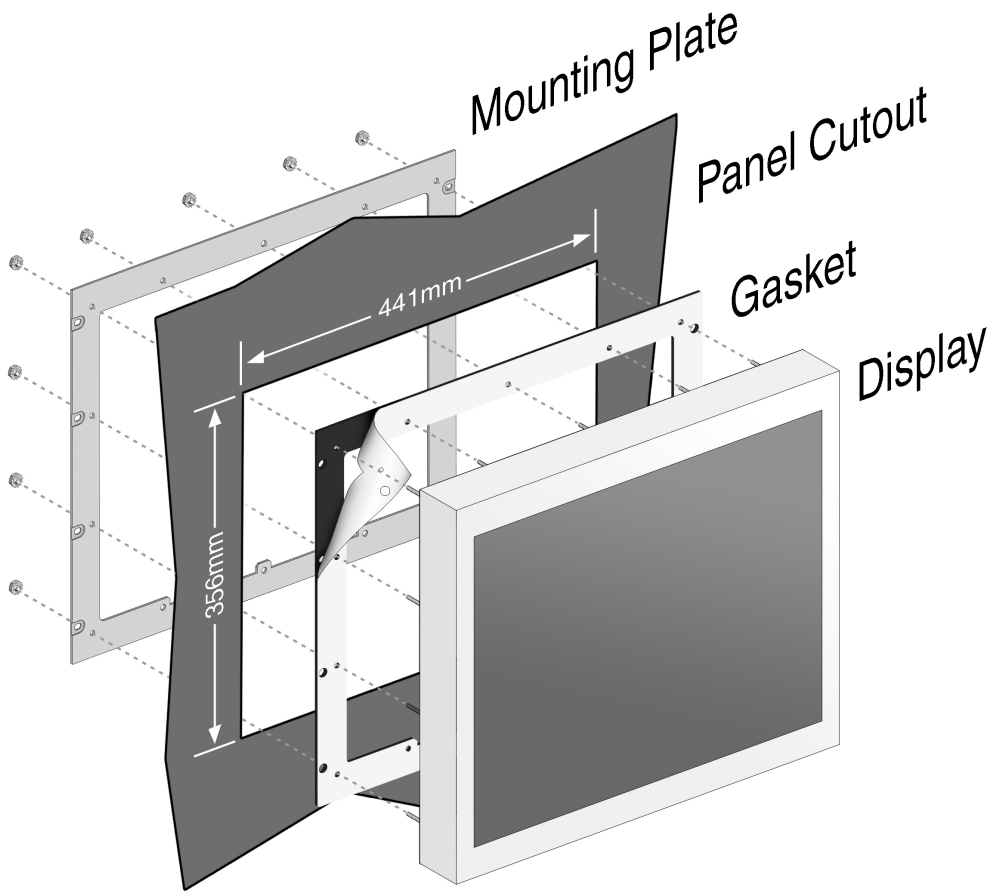


Figure 4: Panel Mounting

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2.4 Panel Mounting Flush-Bezel Models

- ✓ If you're unsure of mounting method, check package contents: If you package contains mounting clamps illustrated in Figure 5, Figure 6 and Figure 7, follow mounting instructions in this section.

Prior to performing subsequent steps, ensure the panel-mounting location (including panel thickness) is suitable for the CYRAQ® 19, and meets Environmental requirements in Specifications section.

NOTE: Panel thickness should not exceed: .55" (14.1mm) Suggested panel thickness is calculated based on standard CYRAQ 19H parts and dimensions, custom units may not meet these specifications.

2.4.1 Panel Mounting the Monitor

Panel cutout dimensions: 401mm H x 487mm W for portrait installation (see Figure 5).

1. Install the display in panel cutout. Ensure Poron™ gasket on the rear of the unit is flush against panel (critical for NEMA compliance).

See Next Page For Illustration

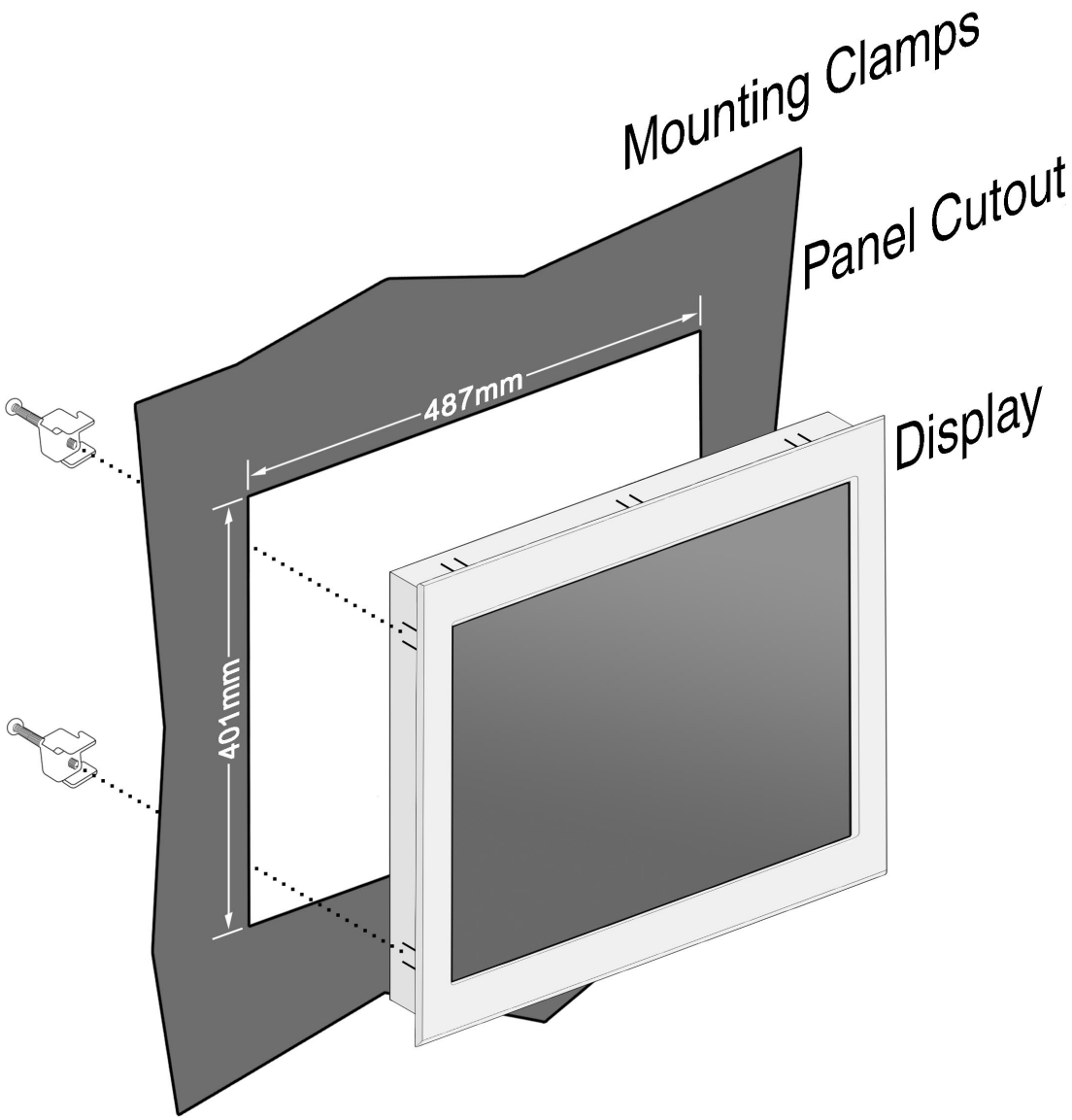

Figure 5: Flush Panel Mounting

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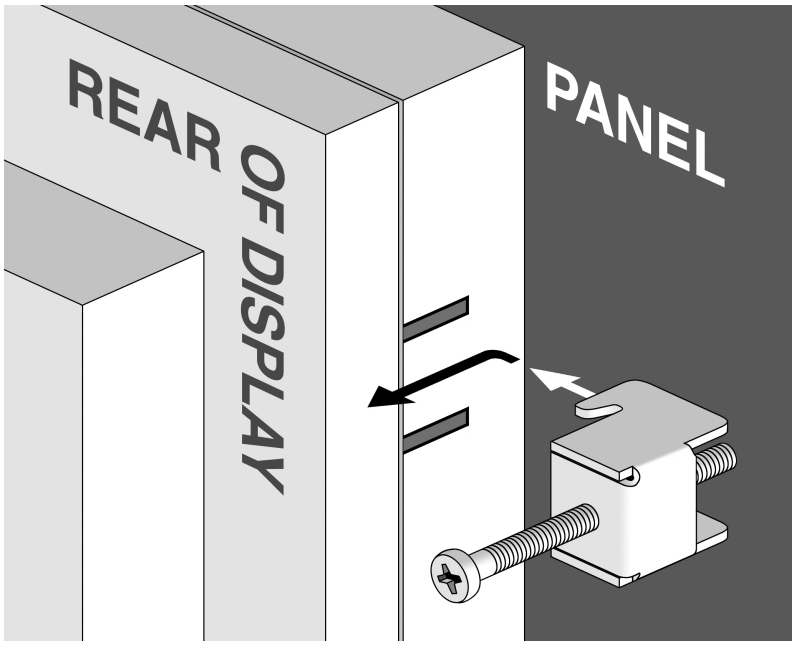

Figure 6: Insert Mounting Clamp

2. With a second person holding the display in place at the front of the panel, insert Mounting Clamps into slots on rear of display, as shown.

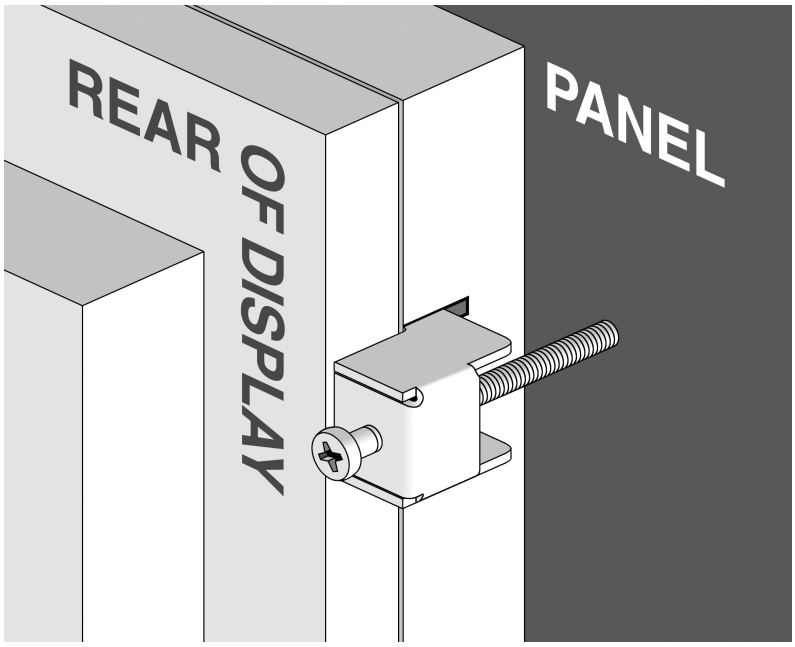

Figure 7: Tighten Mounting Clamp

3. Ensure that hooks on clamp butt against rear of slot as shown in Figure 7.

4. Tighten Mounting Clamps with Phillips head screwdriver until snug.

2.5 VESA Mounting with Swivel Arm

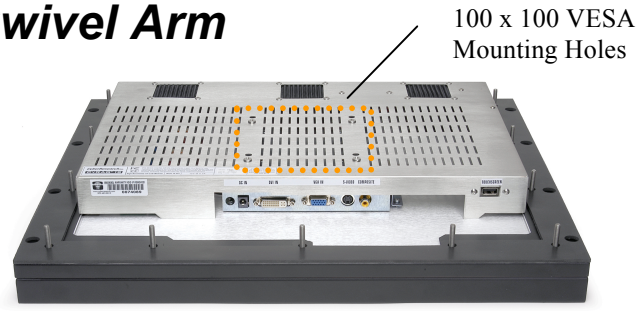

Figure 8: 100 x 100mm VESA Mounting Holes

NOTE: These are "Quick Install" instructions for a popular style bench-top mount VESA arm. This VESA arm style ***MAY NOT*** be the mounting choice you've selected for your CyRAQ. Check the documentation accompanying your VESA arm.

1) ***Disconnect*** *the* ***power***, video and touchscreen cables.
2) Secure cranking unit (#1) to bracket (#2) with at least two bolts (Figure 9). The use of bolts and bolt position depends on thickness of desk. Fully secure bolts with included "T" type hex key.
3) Secure the clamp to the desk/bench top Figure 10). This will make subsequent installation easier. The clamp is capable of securing the arm to surfaces 15-100mm thick (30mm and up is ideal).
4) Before continuing, remove the screw from the arm's base using a Philips head screw driver (Figure 11).
5) Carefully place display on the bench top with screen facing down, as seen in Figure 13.

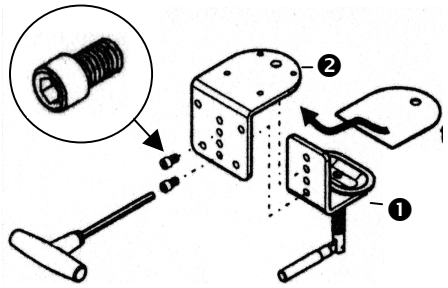

Figure 9: VESA Arm Clamp

NOTE: The SWC 100 permits 100 x 100mm VESA monitors and 75 x 75mm VESA arms to be used jointly.

6) Secure the SWC 100 adapter (Figure 12) to the VESA arm.

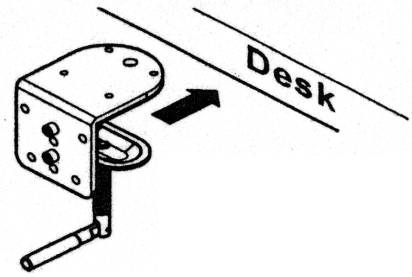

Figure 10: Affix Clamp to Bench Top

Figure 12: SWC 100 Adapter Mounting Plate

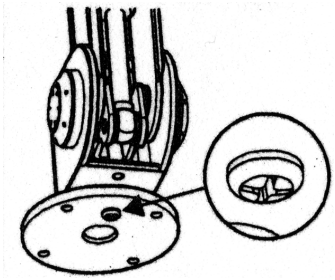

Figure 11: Remove Screw

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7) Secure the arm/adapter plate assembly to the display.

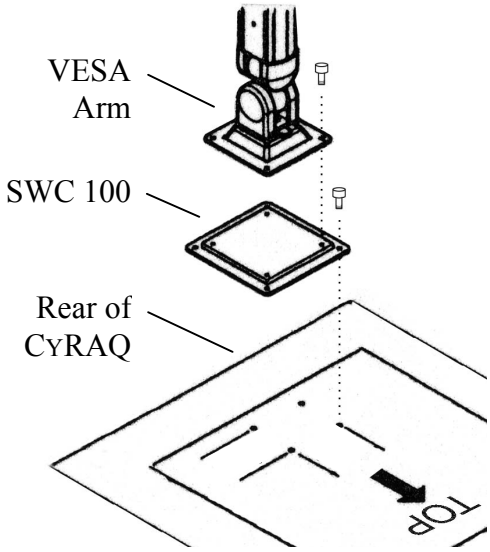

Figure 13: Mounting Arm to Display

8) Secure arm to the clamp with 4 flat head screws (Figure 14); tighten using the "L" shaped hex key.

NOTE: Check arm capacity setting prior to installation.

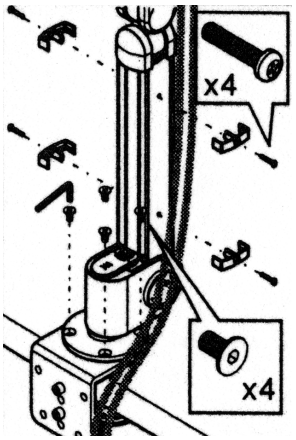

Figure 14: Mounting Arm Base to Clamp

9) Use the "T" hex key provided to adjust the weight capacity (Figure 15).

a. Carefully support the main body of arm while gently pushing downward

b. Turn hex key counterclockwise (toward '-') to decrease capacity

c. Clockwise (toward '+') to increase capacity

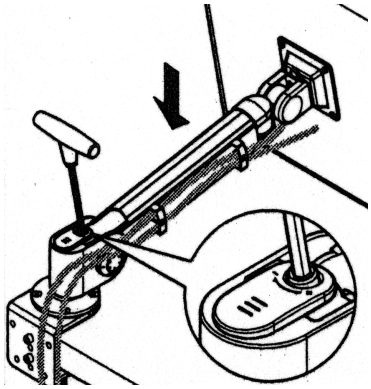

Figure 15: Adjust Weight Capacity

2.6 Connecting the Display

IMPORTANT! Before connecting the power cable to the display, connect all the other cables.

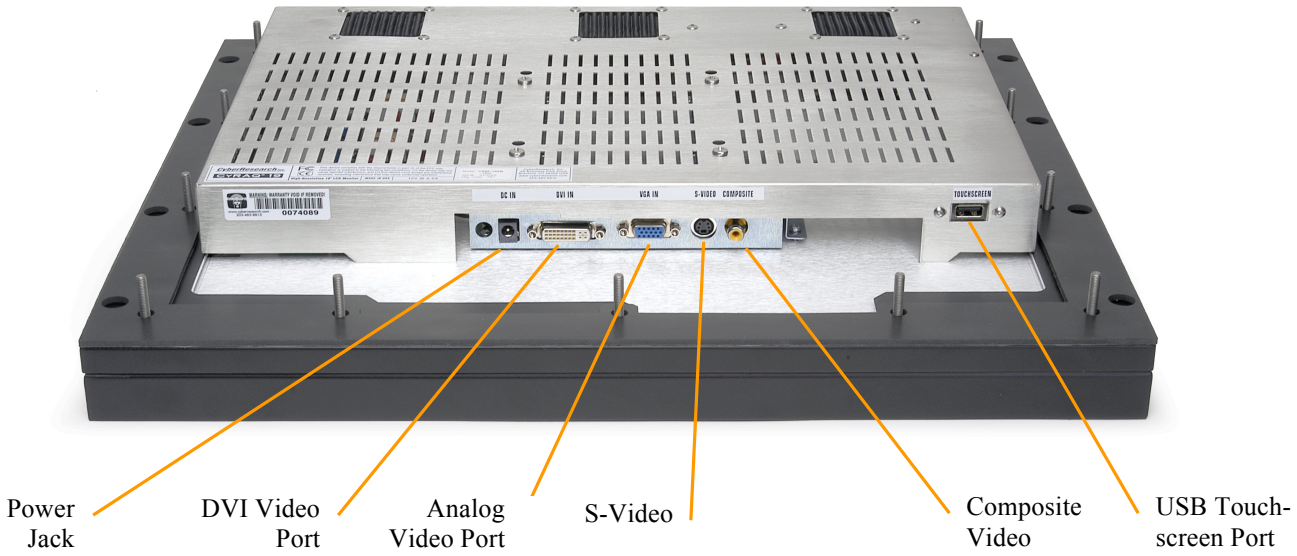

Figure 16: CYRAQ® 19H Connection Layout (Universal Mount model shown)

> ***NOTE***: Turn off the computer before connecting the display

1. After connecting all other cables, connect the power cable to the power jack on the back of the display; refer to Figure 16.
2. Press the On/Off Button, the status light will illuminate.
3. Start the computer.
4. If the computer is running, restart.
5. The display should now function normally.

> ***NOTE***: See Section 4 Touchscreen for connection and driver instruction

> ***NOTE***: If the CYRAQ's screen remains blank or displays the error message "Out of Range" or "No Input Signal," there may be a connection or signal problem. One, or a combination of the possibilities listed below may be the cause:

- Windows resolution is set either too high, or too low for the display; check the resolution by reinstalling the old monitor

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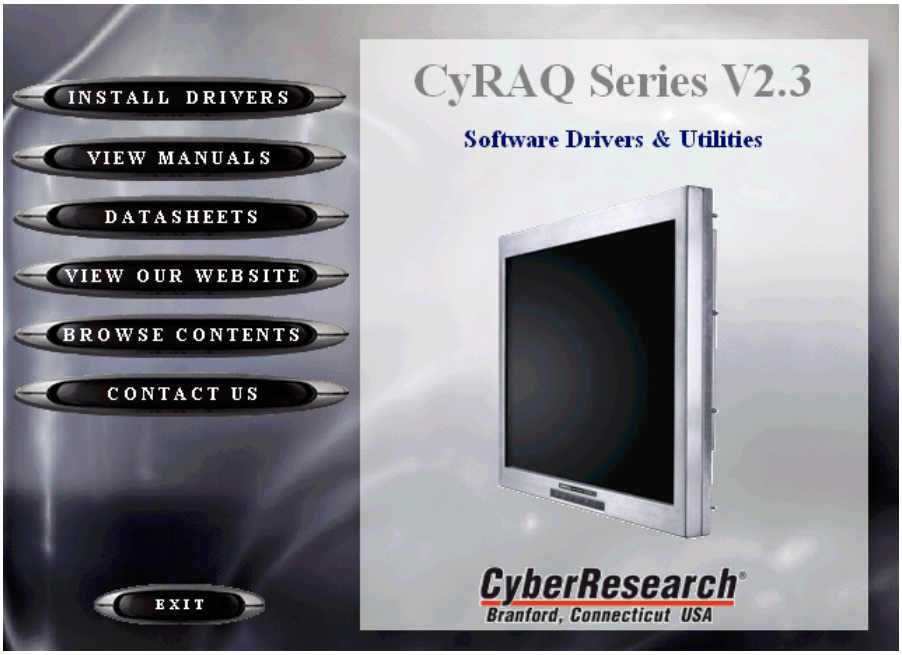
- The refresh rate may be set too high. The refresh rate of an LCD monitor doesn't need to be set as high as a CRTs refresh rate; set the refresh rate @ 60Hz.
- Incorrect power source.
- The video cable isn't tightly connected at one or both ends; reconnect and tighten the cable adapter screws.
- The analog and DVI cables are both connected to the display and the same computer.
- The display is reading the wrong video input; push the Exit/Source button to toggle between the VGA and DVI inputs.
- The unit is malfunctioning.

2.7 Display Driver Installation

1. Insert the driver CD into the computer's CD drive.
2. When the splash screen appears, select Install Drivers.



3. When the Install Products window appears, click Display Drivers.

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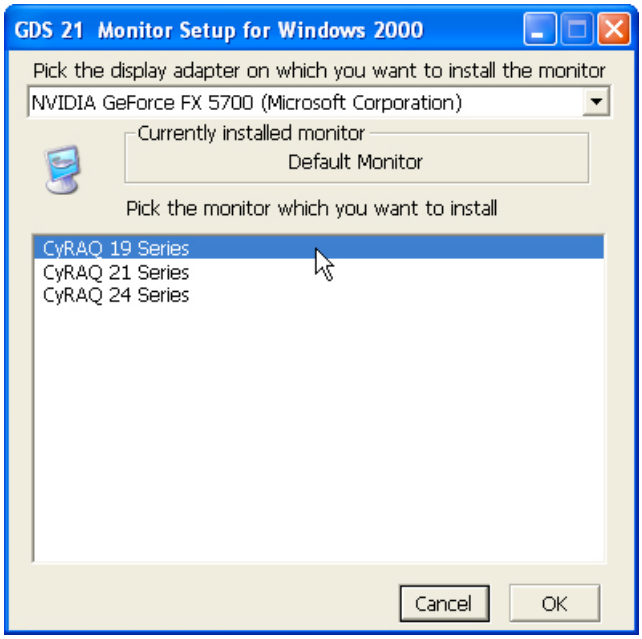
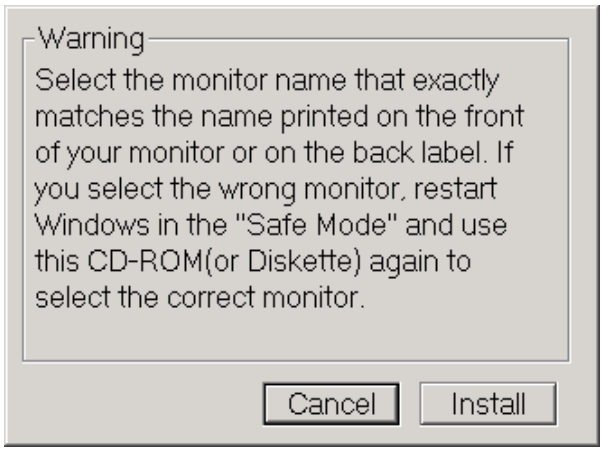
4. Then click on your operating system.

WIN 9X/ME
WIN NT/2K/XP
BACK
DISPLAY DRIVERS
Welcome to the Display Driver section.
Please click on a button to the left, for the installer that corresponds to your Operating System.
NOTE: To determine the operating system on your computer, click the START button on your desktop and you will see the version you have written vertically on the start menu that appears.
CyberResearch
Branford, Connecticut USA

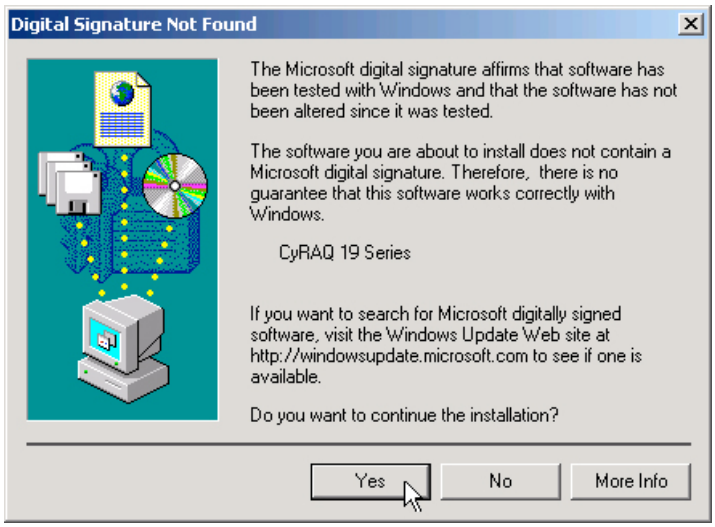
5. Select CYRAQ 19H and click OK.


GDS 21 Monitor Setup for Windows 2000
Pick the display adapter on which you want to install the monitor
NVIDIA GeForce FX 5700 (Microsoft Corporation)
Currently installed monitor
Default Monitor
Pick the monitor which you want to install
CyRAQ 19 Series
CyRAQ 21 Series
CyRAQ 24 Series
Cancel
OK

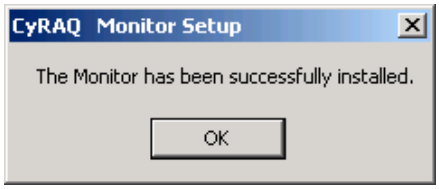
6. Read the monitor warning, “Select the monitor name that exactly matches the name printed on the front of your monitor or on the back label. If you select the wrong monitor, restart Windows in “Safe Mode” and use this CD-ROM (or diskette) again to select the correct monitor.


Warning
Select the monitor name that exactly matches the name printed on the front of your monitor or on the back label. If you select the wrong monitor, restart Windows in the "Safe Mode" and use this CD-ROM(or Diskette) again to select the correct monitor.
Cancel
Install

7. Then Click Install.
8. When the Digital Signature window appears, click Yes.


Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
CyRAQ 19 Series
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

9. When the driver has been installed a Monitor Setup message will appear, click OK.



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NOTE: If the CYRAQ® doesn't display an image immediately, move the mouse to awaken it from "Suspend" mode.

NOTE: If an image still isn't displayed, push the Exit/Source button to ensure the correct input is being used.

3 Using the CyRAQ® 19H

3.1 User Controls

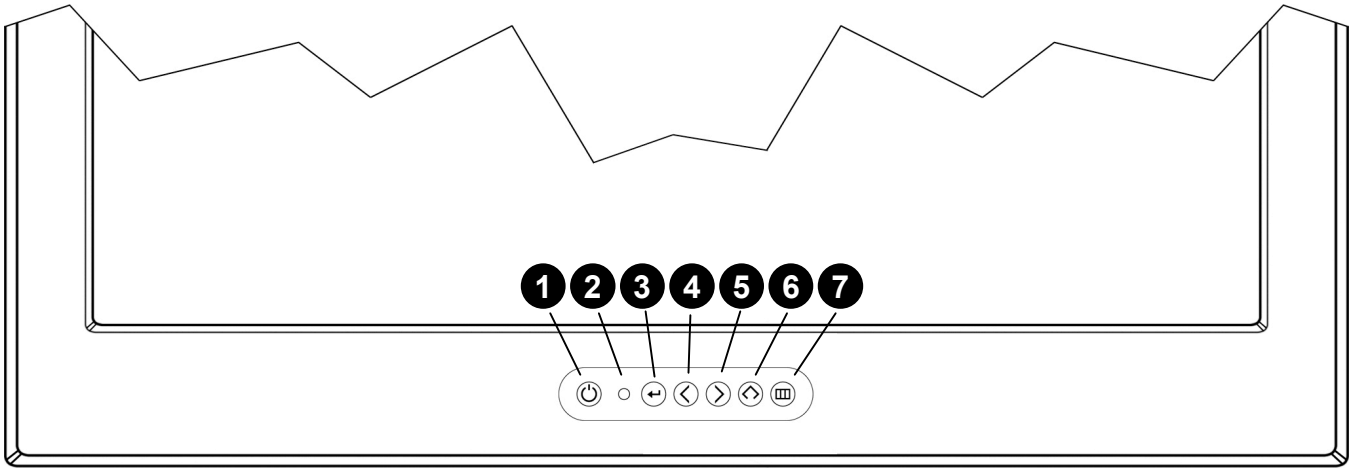

Figure 17: User Controls (Flush Panel-Mount Model Shown)

NOTE: Front and rear user controls are available for the CYRAQ 19H series of monitors. The controls for front and rear are identical. The display control membrane for rear-controlled units is mounted vertically on the rear cover.

3.1.1

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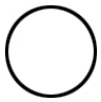
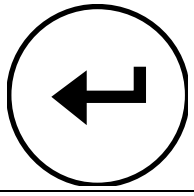
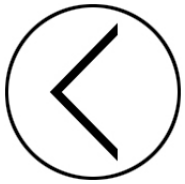
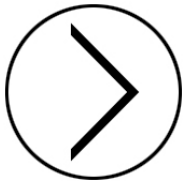
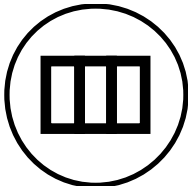
3.1.1 Using Function Buttons

The On Screen Display (OSD) is adjusted using the function buttons on the front or rear of the monitor. Please review the button mapping below before adjusting this display.

Function Button	Action
1	***OSD OFF**: Power on* ***OSD ON**: Power off*
2 	***Status Indicator*** Green: Power on Red: Standby Off: Power off
3 	***OSD OFF**: Input source* ***OSD ON**: Selects highlighted menu option*
4 	***OSD OFF**: Scrolls through Magic Angle (programmable hotkey)* ***OSD ON**: Scrolls down through choices listed or decreases the selected scale*
5 	***OSD OFF**: Initiates brightness adjustment scale* ***OSD ON**: Scrolls up through choices listed or increases the selected scale*
6	***OSD OFF**: Auto adjust* ***OSD ON**: Auto adjust*
7 	***OSD OFF**: Menu* ***OSD ON**: If in sub-menu, returns to previous sub-menu; if on main menu, exits OSD menu*

3.2 ON SCREEN DISPLAY (OSD)

3.2.1 Picture

Figure 18: OSD Picture Menu

We recommend using the factory defaults. If they are not suitable, OSD controls are described below.

Table 3-1: Picture Menu Options

Menu	Description
Brightness	Controls the screen brightness • This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> mode. • This menu is unavailable when <MagicEco> is set.
Contrast	Controls the contrast of the pictures displayed on the screen • This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> or <Cinema> mode. • This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • This menu is unavailable when <Color Effect> is set.
Sharpness	Controls picture clarity displayed on screen • This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> or <Cinema> mode. • This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • This menu is unavailable when <Color Effect> is set.
MagicBright	Provides preset picture settings optimized for various user environments such as editing a document, surfing the Internet, playing games or movies, etc... • <Custom> If the preset picture modes are not sufficient,

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	users can configure the <Brightness> and <Contrast> directly using this mode. • <Standard> This mode provides the picture setting appropriate for editing a document and surfing the Internet (text + picture). • <Game> This mode provides the picture setting appropriate for playing games that include lots of graphics and that require a fast screen refresh rate. • <Cinema> This mode provides brightness and sharpness settings similar to those of a TV for the best entertainment environment (movie, DVD, etc.). • <Dynamic Contrast> Controls the picture contrast automatically so that bright and dark pictures are balanced overall. This menu is unavailable when <MagicAngle> or <MagicEco> is set.
MagicAngle	This feature allows you to see optimal screen quality according to your viewing position. When viewing the screen at an angle from below, above or the side of the monitor, by setting the appropriate mode for each position you can obtain a similar picture quality as viewing the screen directly from the front. • Set to <Off> when viewing directly in front of the screen. • This menu is unavailable when <MagicBright> is set to <Dynamic Contrast> or <Cinema> mode. • This menu is unavailable when <MagicColor> or <Color Effect> is set.
Coarse	Removes vertical noise lines (line pattern) from the screen. The location of the screen may be changed after the adjustment. In this case, move the screen so that the screen is displayed at the center of the display panel using the <H-Position> menu. • This function is only available in Analog mode.
Fine	Removes horizontal noise lines (line pattern) from the screen. If you cannot remove the noise completely with the <Fine> function, adjust the <Coarse> and then use the <Fine> function again. • This function is only available in Analog mode.

3.2.2 Color

Figure 19: OSD Color Menu

Table 3-2: Color Menu Options

Menu	Description
MagicColor	Expresses natural colors more clearly without changing the picture • <Off> - Turns the <MagicColor> function off. • <Demo> - You can compare the pictures processed by <MagicColor> with the original pictures. • <Full> - Provides a clearer picture including areas corresponding to skin color. • <Intelligent> - Improves the chroma of pictures except for areas corresponding to skin color. • This menu is unavailable when <MagicAngle> is set. • This menu is unavailable when <Color Effect> is set.
Red	You can adjust the red color value of pictures according to your preference. • This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • This menu is unavailable when <Color Effect> is set
Green	You can adjust the green color value of pictures according to your preference. • This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • This menu is unavailable when <Color Effect> is set.
Blue	You can adjust the blue color value of pictures according to your preference.

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	• This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • This menu is unavailable when <Color Effect> is set.
Color Tone	You can set the color temperature according to your preference. • <Cool> - Sets the color temperature of the screen to a cooler color. • <Normal> - Sets the color temperature of the screen to the standard color temperature. • <Warm> - Sets the color temperature of the screen to a warmer color. • <Custom> - Select this menu to set the color temperature manually. If you do not like the preset color temperatures, you can manually adjust the value of RGB. • This menu is unavailable when <MagicColor> is set to <Full> mode or <Intelligent> mode. • This menu is unavailable when <MagicAngle> is set. • This menu is unavailable when <Color Effect> is set.
Color Effect	You can change the overall atmosphere by changing the color of pictures. • <Off> - Turns the <color effect> function off. • <Grayscale> -Displays pictures in black and white. • <Green> - Displays pictures in green mono color. • <Aqua> - Displays pictures in aqua mono color. • <Sepia> - Displays pictures in sepia mono color. • This menu is unavailable when <MagicAngle> is set. • This menu is unavailable when <MagicColor> is set.
Gamma	Using this menu, you can change the intensity of the colors of medium brightness. • <Mode1> - <Mode2> - <Mode3> • This menu is unavailable when <MagicAngle> is set.

3.2.3 Size and Position

Figure 20: OSD Size and Position

Table 3-3: Size & Position Menu Options

Menu	Description
H-Position	Moves the position of the display area on the screen horizontally. • This function is only available in Analog mode. • When a 720P, 1080i or 1080P signal is input in AV mode ,select <Screen Fit >to adjust horizontal position in 0-6 levels
V-Position	Moves the position of the display area on the screen vertically. • This function is only available in Analog mode. • When a 720P, 1080i or 1080P signal is input in AV mode, select <Screen Fit >to adjust vertical position in 0-6 levels
Image Size	**PC Signals** • <Auto> - The picture is displayed at the aspect ratio of the input signal. • <Wide> - The picture is displayed in full screen regardless of the aspect ratio of the input signal. • If the resolution is set to the optimal resolution, the aspect ratio does not change whether the <Image Size> is set to <Auto> or <Wide>. **AV Signals** • <4:3> - Displays pictures at the 4 : 3 aspect ratio. • <16:9> - Displays pictures at the 16 : 9 aspect ratio. • <Screen Fit> - If a 720P, 1080i or 1080P signal is input in DVI input mode, the picture is displayed as is without truncation.

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	• This can only be set when the external input is connected through DVI and <PC/AV Mode> is set to <AV>.
Menu H-Position	You can adjust the horizontal position of the OSD.
Menu V-Position	You can adjust the vertical position of the OSD.

3.2.4 Setup and Reset

Figure 21: OSD Setup and Reset

Table 3-4: Setup & Reset Menu Options

Menu	Description
Reset	Use this function to restore the visual quality and color settings to the factory defaults. • <No> - <Yes>
Language	Select a language for the OSD.
MagicReturn	This function is available only in Windows 7. The monitor cannot be recognized when it is turned off. • <Off> When<Off>is selected, the<MagicReturn>function is turned off. • <On> When<On>is selected, the<MagicReturn>function is turned on. • This function does not support Analog mode. • This function is only available for PC mode when using DVI input. • This function is not available withWindows2000/XP/Vista operating systems. It is suggested to select <Off>. • This function is not available for graphics card ATI X600. It is suggested to select <Off>. • When the <Check Signal Cable> OSD is shown, user can

	press and hold the Down button (5 seconds), <MagicReturn> will set to <Off>. • The <Magic Return> function may not work properly with graphics cards that are not fully compliant with DVI specifications. • If this is the case, please contact the appropriate graphics card manufacturer or set the <Magic Return> function to <Off>.
MagicEco	This function provides user a low power mode which is realized by lowering the current of the display panel. • <100%> When <100%> is selected, the power consumption is 100% of default setting. • <75%> When <75%> is selected, the power consumption is about 75% of default setting. • <50%> When <50%> is selected, the power consumption is about 50% of default setting. • <Power Saving Off> When <Power Saving Off> is selected, the function is turned Off.
Off Timer On/Off	You can turn the Off Timer on or off. • <Off> - <On>
Off Timer Setting	Turns the power off automatically when the configured time is reached. • This function is available only when <On> of <Off Timer On/Off> is selected.
Customized Key	You can set the function of the Customized Key to one of the following. • <MagicBright> - <MagicAngle> - <MagicEco> - <Image Size>
Auto Source	• <Auto> - The monitor automatically selects an input signal. • <Manual> - Users have to manually select an input signal. • Not applicable to analog (D-SUB)-or-digital (DVI)-dedicated models.
PC/AV Mode	• Set to PC when connected to a PC. • Set to AV when connected to an AV device. • This function does not support Analog mode. • Supplied for the wide models only such as 16:9 or 16:10.
Display Time	The OSD automatically disappears if no action is taken by the user. You can determine the time to wait before the OSD is hidden. • <5 sec> - <10 sec> - <20 sec> - <200 sec>
Menu Transparency	You can select the transparency of the OSD. • <Off> - <On>

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3.2.5 Information

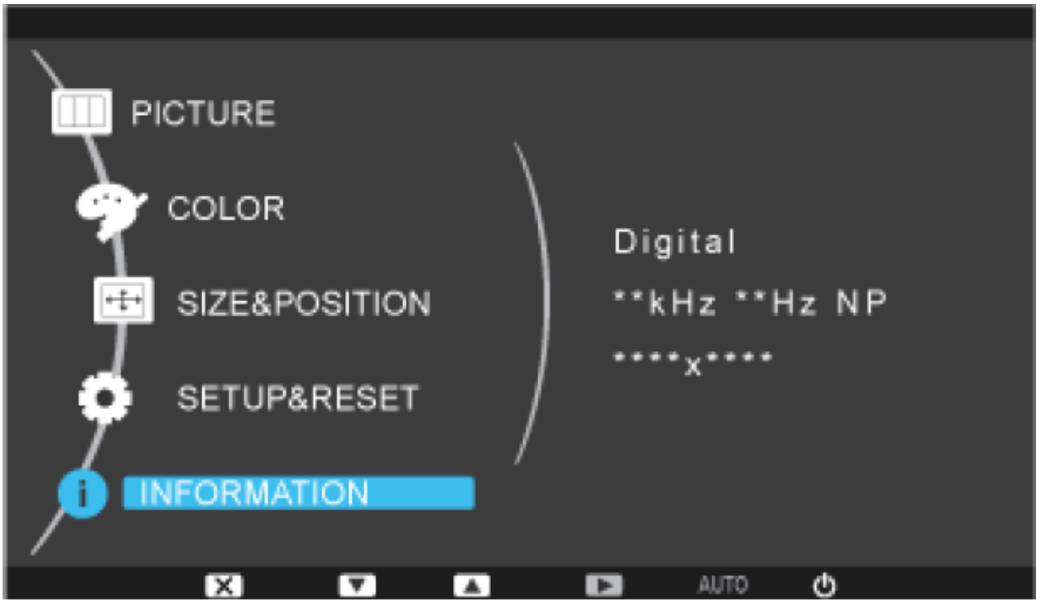

Figure 22: OSD Setup and Reset

Table 3-5: Information Menu Options

Menu	Description
Information	Shows the frequency and resolution set on the PC. • For Analog interface only

4 Touchscreen

Touchscreens are the ultimate human/machine interface. In a touchscreen system, touching what you see onscreen makes the computer respond. The touchscreen system is logical, intuitive and simple. Using touchscreens, workers can precisely control complicated processes without being tethered to a keyboard and mouse. People who have never used a computer before can immediately interact successfully with a touchscreen-based computer system allowing airline customers to access flight information, CNC machinists to quickly change programs, and wait staff to instantly send your order to the kitchen—all with the touch of their finger.

4.1 Installation

The Touchscreen and internal controller board inside your CYRAQ® display has already been installed for you by the engineers at CyberResearch, Inc. You should never need to open the case of this unit to install/change any of the internal connections or for any other reason. If you think there is an internal connection problem, please contact CyberResearch Inc. immediately.

4.1.1 Serial Cable Connection

1. Shutdown your computer.
2. Plug the DB9 male end of the supplied serial cable into the DB9 female connector on the back of the CYRAQ enclosure.
3. Plug the DB9 female end of this cable into the computer's DB9 serial port. If you have a 25-pin serial port, use the optional DB9 male to DB25 female adapter.

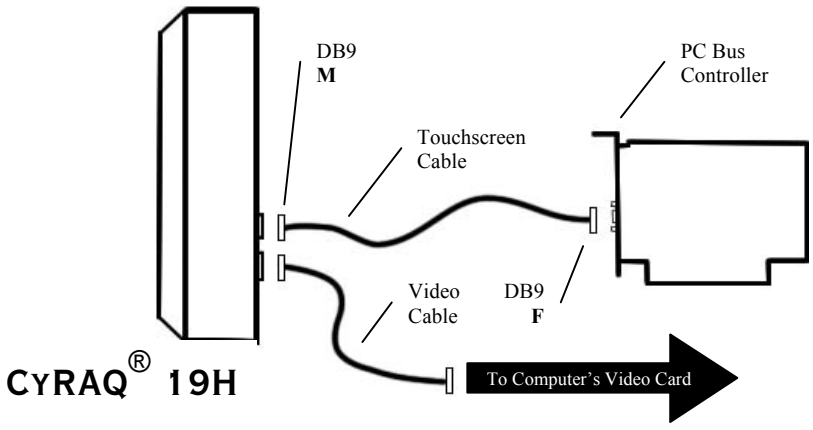

Figure 18: Touchscreen Cable Layout

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4.1.2 USB Cable Connection

1. Shutdown your computer.
2. Plug the USB cable into the display's USB connector on the back of the enclosure.
3. Plug the other end of the USB cable into a free USB port on the back of the computer.

4.1.3 Touchscreen Driver Installation

1. Reboot your computer.
2. After Windows loads, put the CyberResearch Software and Utilities CD into the CD drive.

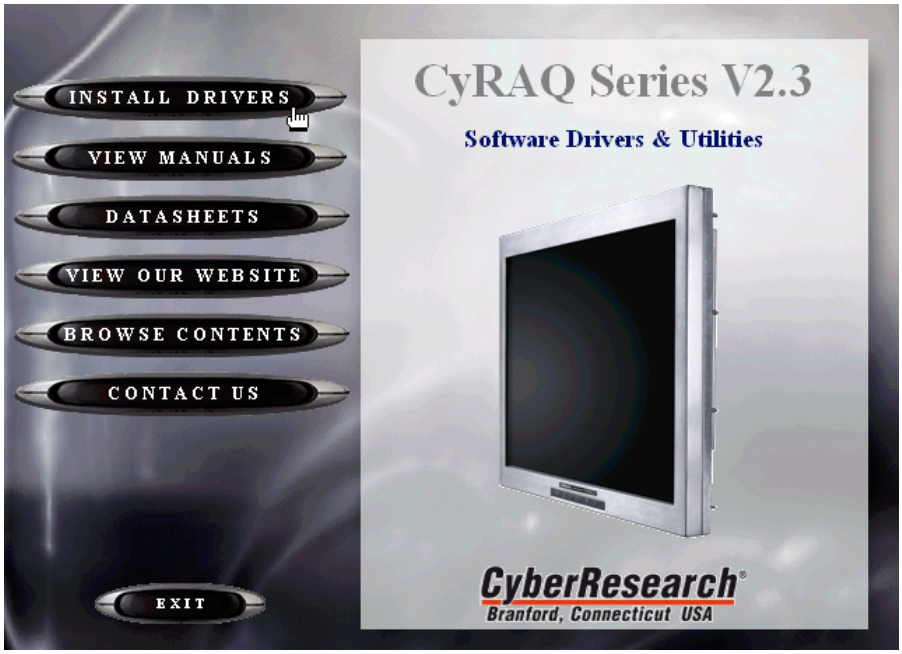
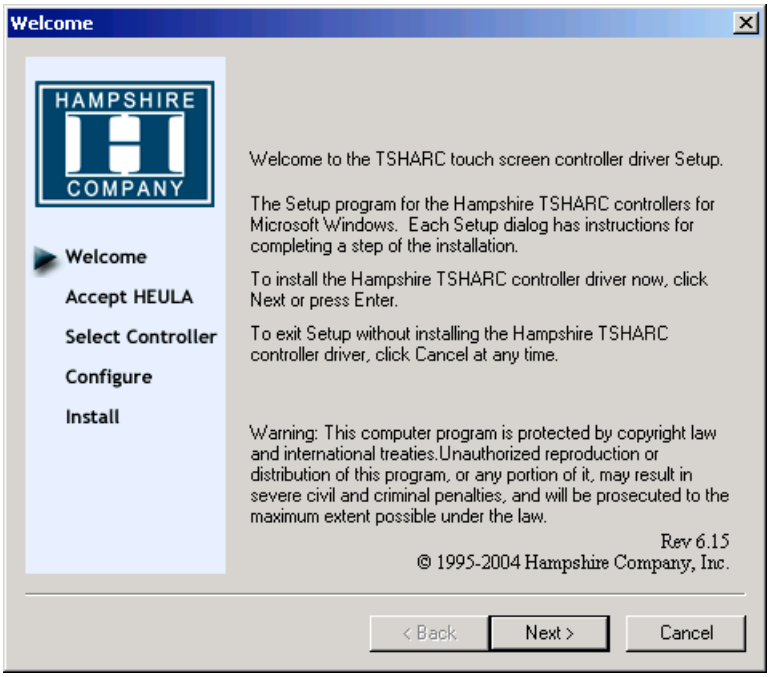


Figure 19: Splash Screen

3. When the splash screen appears (Figure) click on Install Drivers
4. Then click TouchScreen (Figure 23)

Figure 23: Install Products

5. After the Welcome window appears, click Next to continue


Welcome
HAMPSHIRE COMPANY
Welcome
Accept HEULA
Select Controller
Configure
Install
Welcome to the TSHARC touch screen controller driver Setup.
The Setup program for the Hampshire TSHARC controllers for Microsoft Windows. Each Setup dialog has instructions for completing a step of the installation.
To install the Hampshire TSHARC controller driver now, click Next or press Enter.
To exit Setup without installing the Hampshire TSHARC controller driver, click Cancel at any time.
Warning: This computer program is protected by copyright law and international treaties.Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Rev 6.15
© 1995-2004 Hampshire Company, Inc.
< Back
Next >
Cancel

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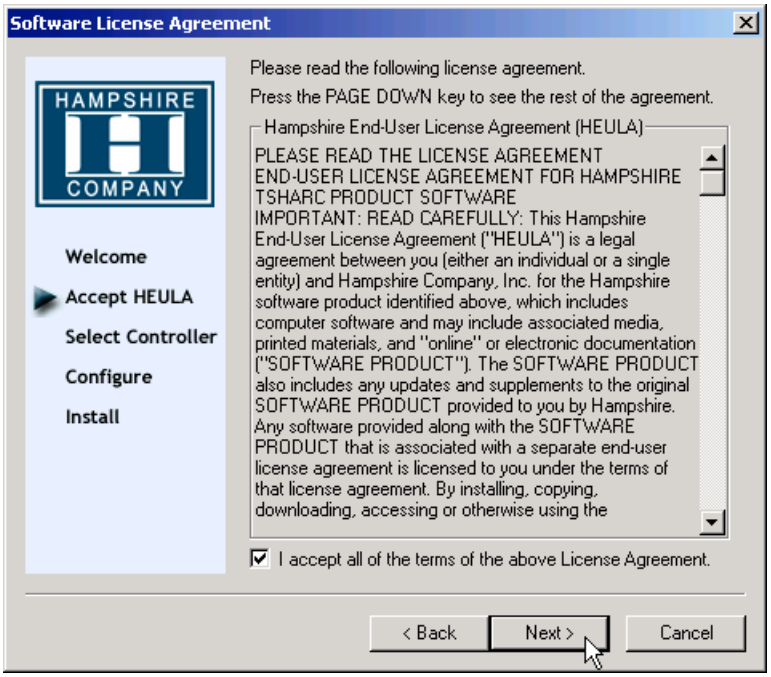
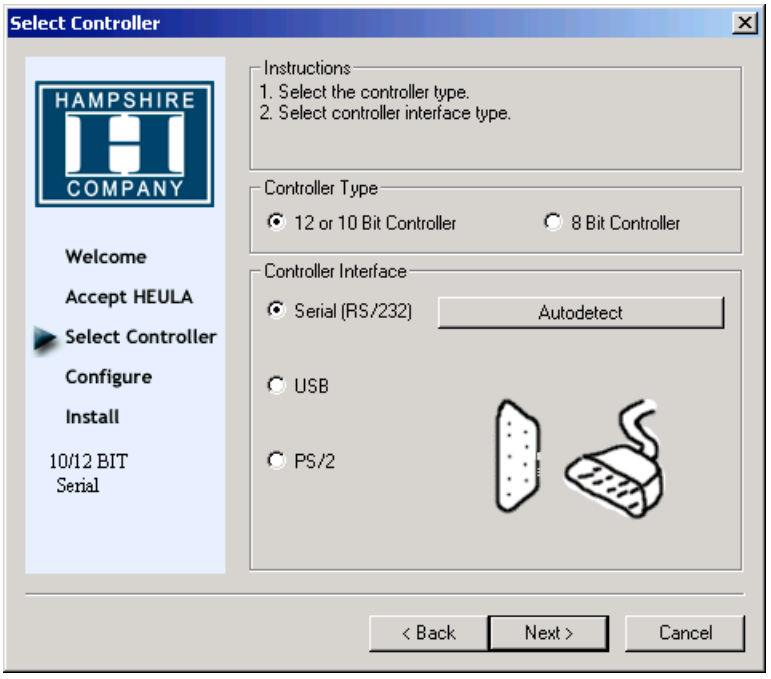
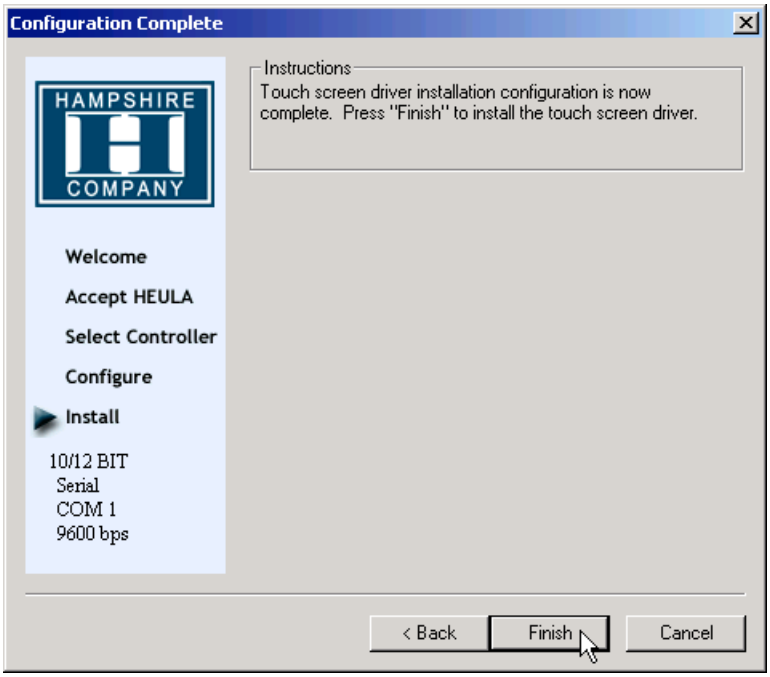
6. After accepting the license agreement, click Next


Software License Agreement
HAMPSHIRE COMPANY
Welcome
Accept HEULA
Select Controller
Configure
Install
Please read the following license agreement.
Press the PAGE DOWN key to see the rest of the agreement.
Hampshire End-User License Agreement (HEULA)
PLEASE READ THE LICENSE AGREEMENT
END-USER LICENSE AGREEMENT FOR HAMPSHIRE TSHARC PRODUCT SOFTWARE
IMPORTANT: READ CAREFULLY: This Hampshire End-User License Agreement ("HEULA") is a legal agreement between you (either an individual or a single entity) and Hampshire Company, Inc. for the Hampshire software product identified above, which includes computer software and may include associated media, printed materials, and "online" or electronic documentation ("SOFTWARE PRODUCT"). The SOFTWARE PRODUCT also includes any updates and supplements to the original SOFTWARE PRODUCT provided to you by Hampshire. Any software provided along with the SOFTWARE PRODUCT that is associated with a separate end-user license agreement is licensed to you under the terms of that license agreement. By installing, copying, downloading, accessing or otherwise using the
I accept all of the terms of the above License Agreement.
< Back
Next >
Cancel

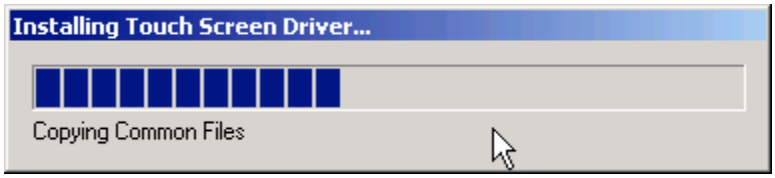
7. Select controller type, interface, and then click Next



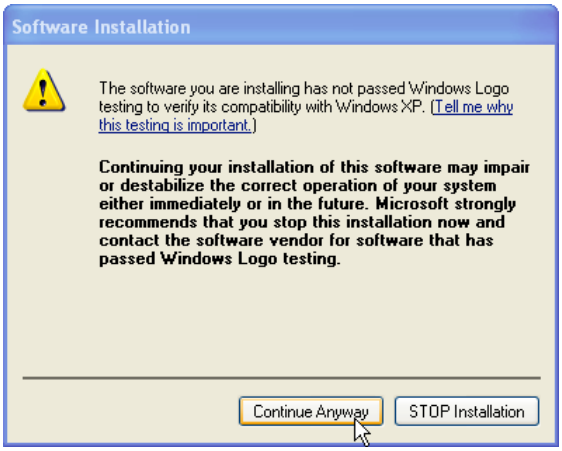
8. Click Finish to install touch screen driver



9. After touch screen driver is installed, you will be prompted to restart the computer



10. The driver you are installing is compatible with Windows. Click Continue Anyway (you may need to do this more than once).


Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

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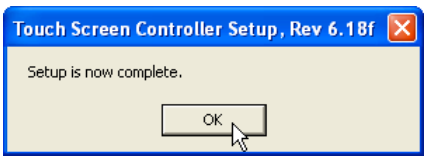
11. Click OK



12. Restart your computer before continuing with section 4.2.

4.2 Calibration

4.2.1 Calibration Options:

Three point calibration: Quick calibration of a known good touchscreen overlay. May be used to evaluate, test or verify actual touchscreen linearity.

- No correction.

Four Point Calibration (Default): Will compensate for skew, and some edge linearity anomalies.

- Best for general calibration.

Seven Point Calibration: More accurate than 3 point calibration. Helps calibrate screen to the edges.

- No correction.

Twenty Point Calibration: Provides the highest level of touchscreen linearization and skew correction. Should be used to get the best possible calibration

- May be used to extend the life of a failing touchscreen.

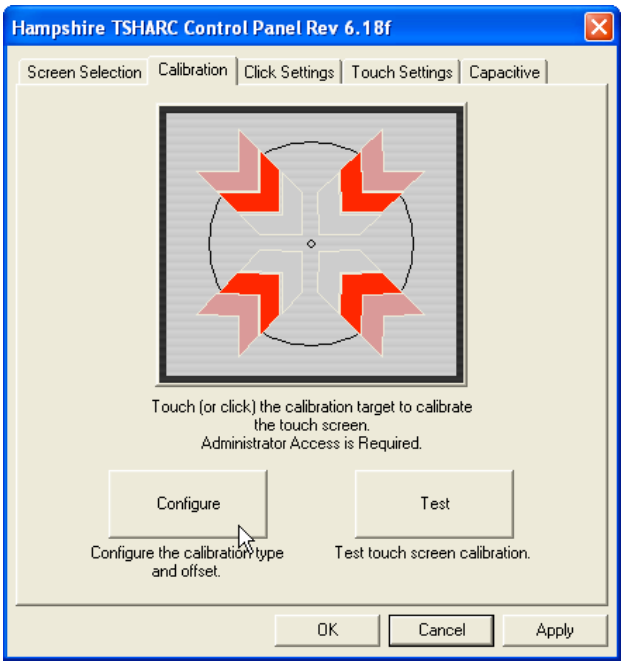
Calibration Offset: Because of the varied linearity that exists between touchscreen types, you may want to calibrate the edges of the touchscreen more precisely. Experiment with this setting to find the best result.

- Default is 20%.
- Select the large target to calibrate.

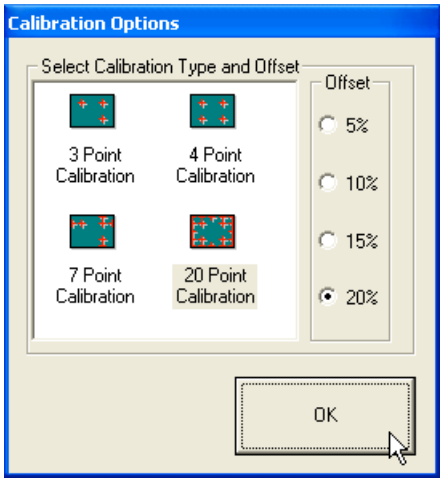
4.2.2 Configure Calibration Settings

Generally speaking, the default setting of 4 Point Calibration is quite accurate for most applications. ***It is recommended the user try this default setting before configuring calibration with a different setting.*** If adjustments need to be made, use the procedure on the next page:

1. Open the Hampshire TSHARC Control Panel (Start\All Programs\ Hampshire TSHARC Control Panel). Click the Calibration tab.



2. Click/touch on the Configure button.



3. When the Calibration Options window appears:
   a. Click/touch on **a Calibration Type** icon

      -AND-

   b. Choose an Offset radio button.
4. Then click/touch OK.

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4.2.3 Calibration Routine

1. Click/touch the calibration target seen in Figure 24 to begin calibration routine.

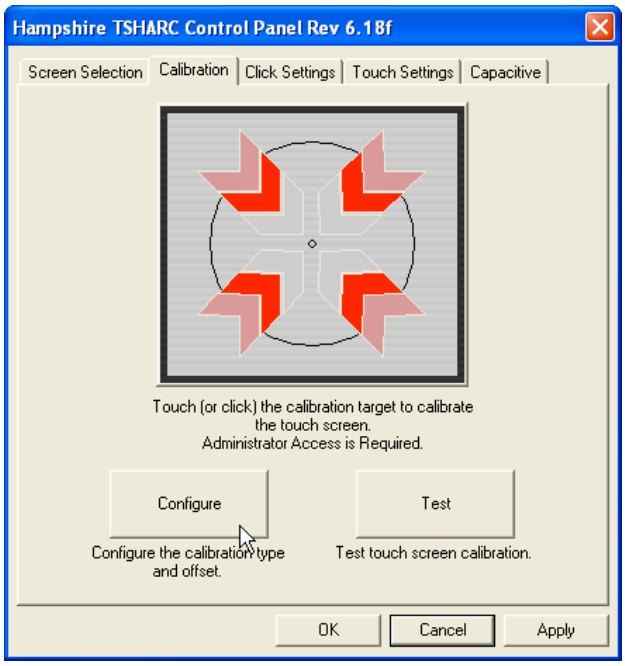

Figure 24: Calibration Target

2. Follow the on-screen prompts to complete calibration process.

Once you have selected the large calibration target from the control panel, the calibration program will begin.

3. As each target is displayed on the screen TOUCH and hold the center of each target as directed by the text located adjacent to each target.
4. Touch the center of each target as accurately as possible.

Hampshire calibration targets have been specially developed to assist you in calibrating your touchscreen as accurately as possible.

5. As each target is displayed, touch and hold the center of each calibration target until it shrinks and the "Hold" text changes to "Release".

The calibration screen will automatically time out and return you to the control panel if the first point is not touched within 10 seconds. This time-out feature has been added to the calibration program to insure that you can exit the calibration screen in the event that you have a damaged our disconnected touchscreen. This time-out feature may also be configured for other time-out values.

4.2.4 Calibration Test

This is the last screen displayed in the calibration process.

1. Touch the screen and notice if the calibration target is displayed under your finger or stylus. If the target appears directly under your finger, select the "Accept" button.
2. If the target does not appear directly beneath your finger or stylus, select the "Cancel" button, reconfigure your calibration options and recalibrate until you get an acceptable calibration. You may adjust the "Offset", or try a different calibration scheme.
3. Select "Accept" to apply and record your calibration data.
4. Select "Cancel" to return to the calibration tab. Once you return to the calibration tab, select, "OK" or "Apply" to save your settings.
5. If you have multiple monitors return to the "Screen Selection" tab and select another monitor to calibrate.

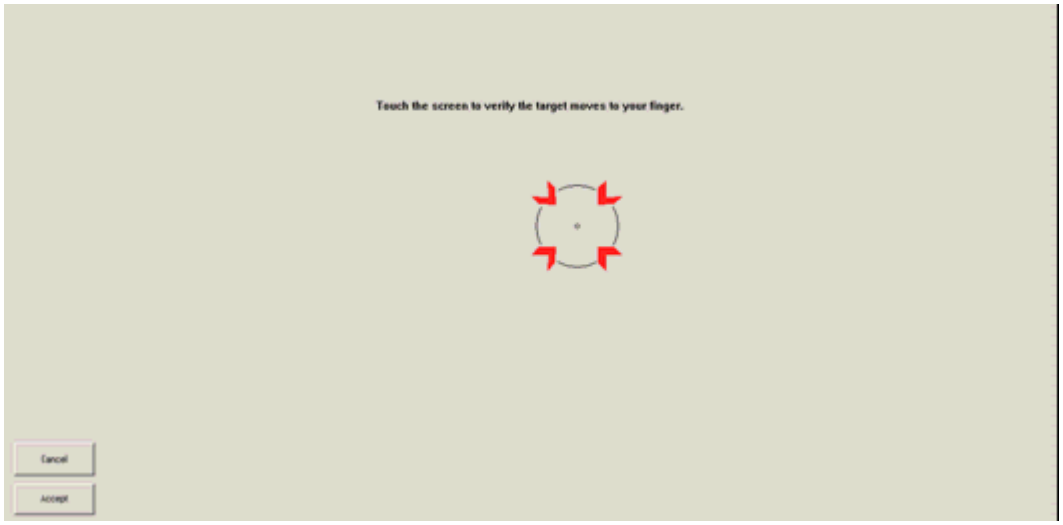

Figure 25: Calibration Target

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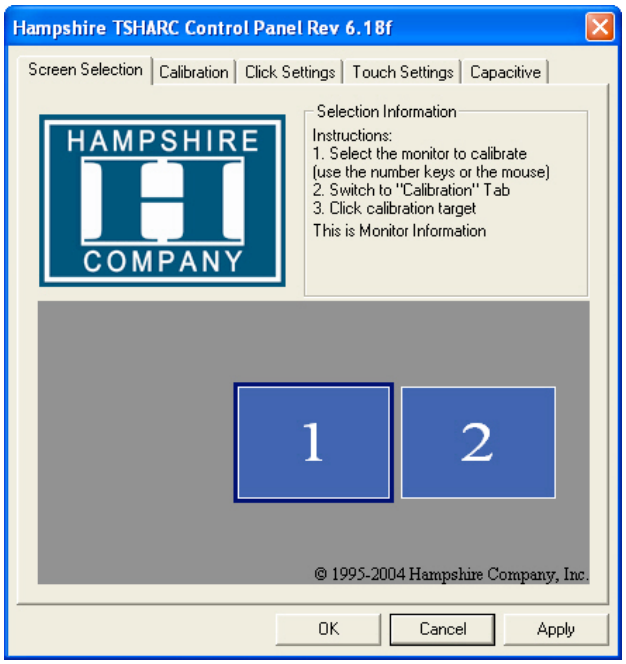
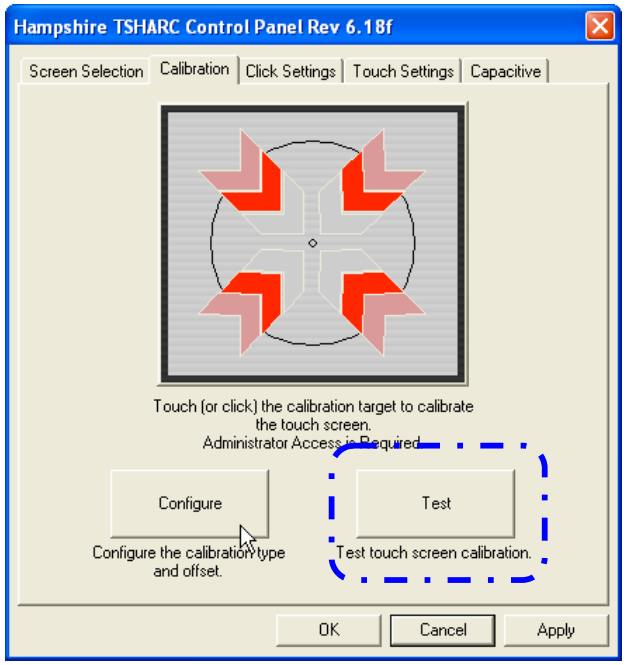
4.2.5 Drawing Test

Use the Test Feature to ensure calibration is accurate. Once you have calibrated your touchscreen, you may select the "Test" button located on the calibration tab of the control panel. This is a simple drawing program that you may use to determine if you touchscreen is working properly.

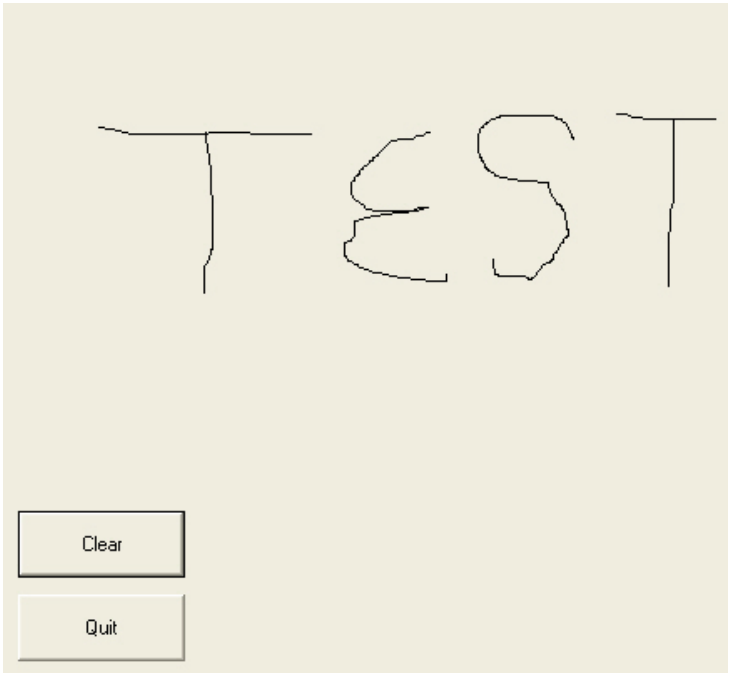
1. Open the Hampshire TSHARC Control Panel (Start\All Programs\ Hampshire TSHARC Control Panel).



2. Click/touch the Calibration Tab, then click/touch the Test button



3. Tap some points on the screen, or, write a word to ensure the program renders the contact points correctly.



4. When done, click/touch Quit.

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4.2.6 Right Click Emulation

The TSHARC Control Panel permits users to enable Right Click Emulation, which simulates functionality (where applicable) of a right mouse click. It works by touching the same point on the touchscreen for a specific amount of time predetermined on the Click Settings tab of the TSHARC Control Panel. You can enable this functionality and define the amount of time necessary on the Click Settings tab, as seen in Figure 26.

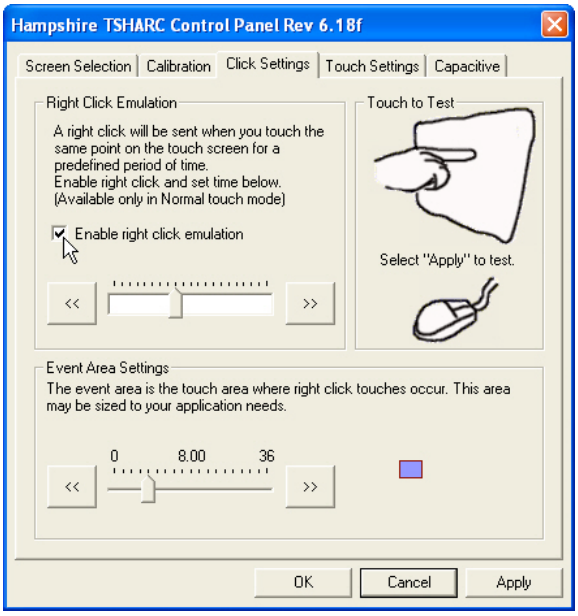
Hampshire TSHARC Control Panel Rev 6.18f
Screen Selection
Calibration
Click Settings
Touch Settings
Capacitive
Right Click Emulation
A right click will be sent when you touch the same point on the touch screen for a predefined period of time.
Enable right click and set time below.
(Available only in Normal touch mode)
Enable right click emulation
<<
>>
Touch to Test
Select "Apply" to test.
Event Area Settings
The event area is the touch area where right click touches occur. This area may be sized to your application needs.
0
8.00
36
<<
>>
OK
Cancel
Apply

Figure 26: Click Settings Tab

1. Click the Enable right click emulation checkbox to activate this feature.
2. The slider below the checkbox is used to determine the amount of time necessary when holding down a touchpoint to generate the right click event.

Event Area Settings:

Since it may be difficult to touch and hold an exact point on any touchscreen for a length of time, an event area is used to establish the size of the area in which a "hold" is acceptable.

3. The event area should be set to at least the same size as your finger tip.
4. Click or touch "Apply" to apply your selection. "OK" to apply and exit the control panel

4.2.7 Touch Settings

Touch Sound: Check "Enable touch sound" to enable a beep when the touchscreen is touched.

Normal: Emulates a standard mouse. Selecting "Normal" will allow for single click, double click, drawing, dragging and right click option (if right click is enabled).

Touch down: Touch down will allow for a click event to take place at touch down. You will not be able to draw or drag if this option is selected.

Touch up: Touch sent only at touch up. Disables right click and double click functions. Click or touch "Apply" to apply your selection. "OK" to apply and exit the control

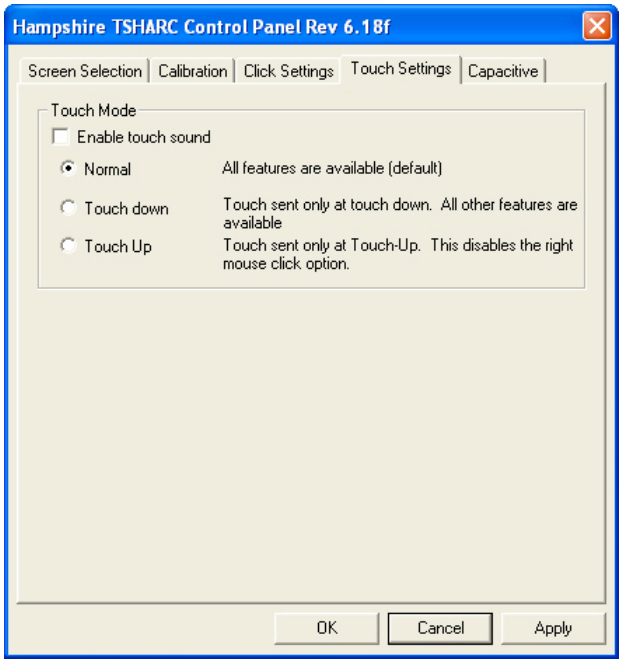

Figure 27: Touch Settings Tab

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5 Product Care

The CYRAQ® unit is primarily a maintenance-free product. It does require occasional cleaning to keep it looking and performing its best. Additionally, please make sure the unit is placed with consideration for environmental temperature, humidity shock and vibration tolerances noted in the Specifications section of this manual. Some of those specifications are listed again below for your convenience.

Environmental Specifications		
Operating Temperature		32~122°F (0~50°C)
Storage Temperature		-4°~+140°F (-20~+60°C)
Relative Humidity, noncondensing		10~95%
Shock Resistance	Operating	30g half-sine for 11ms
Vibration Resistance	Operating	15 to 57 Hz: 0.006" peak-to-peak; 57 to 640 Hz sine: 1.0 g peak-to-peak
Altitude, Max.		1.89 mi (3.05 km)

5.1 Cleaning

Before cleaning the CYRAQ unit, disconnect power to the device.

5.1.1 Touchscreen

Clean the touchscreen with household glass cleaner or just plain water, and soft cloth.

- We do not recommend using paper products to clean the touchscreen.
- Always dampen the towel ***first***, and then clean the touchscreen to reduce abrasion from the cleaning applicator.
- Glass cleaner sprayed directly onto the CYRAQ's screen could possibly be oversprayed and leak into the back of a unit if not mounted correctly, and cause damage.

5.1.2 LCD

Clean the LCD screen with household glass cleaner or just plain water, and soft cloth

- Do not spray cleaner or water directly on any part of the unit—front or back.
- We do not recommend using paper products to clean your display screen
- Always dampen the towel ***first***, and then clean the LCD screen to reduce abrasion from the cleaning applicator.
- Do not use or store flammable substances near the LCD.

5.1.3 Fan Filters

Periodically, you may find it necessary to clean fan filters built into the back of the display's enclosure. Cleaning frequency is largely based on environmental and other conditions immediately surrounding the unit. Since most applications require the CYRAQ to be rack or panel-mounted, the engineers at CyberResearch, Inc. designed a filter system users can maintain without dismounting the display, disassembling the unit, or removing the fan filters from the enclosure.

Disconnect power to the unit before beginning the subsequent steps

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To clean the fan filters:

1. Power off the unit using the On/Off switch.
2. Unplug the unit's AC power.
3. Gain access to the rear of the unit.
4. Carefully run a vacuum hose (using a crevice attachment is ideal) over the protective fan filter screens (Figure) to remove dust and debris from the protective covers and underlying fan filters themselves.
5. When done, restore power to unit.

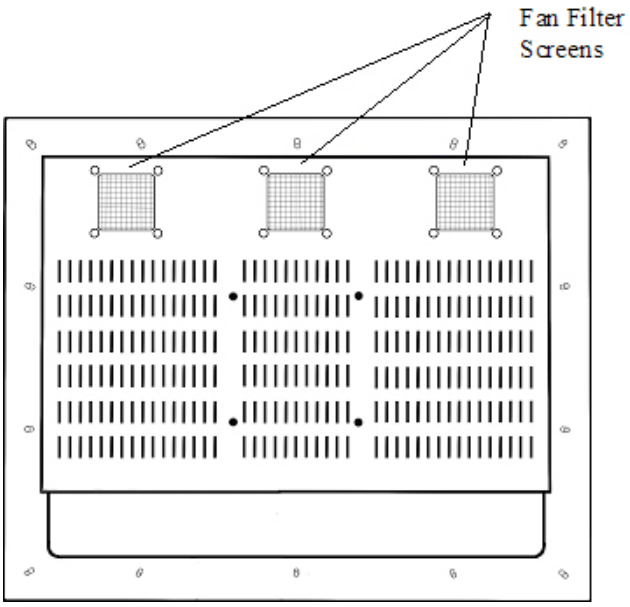

Figure 25: Cleaning Fan Filters

6 Mechanical Drawings

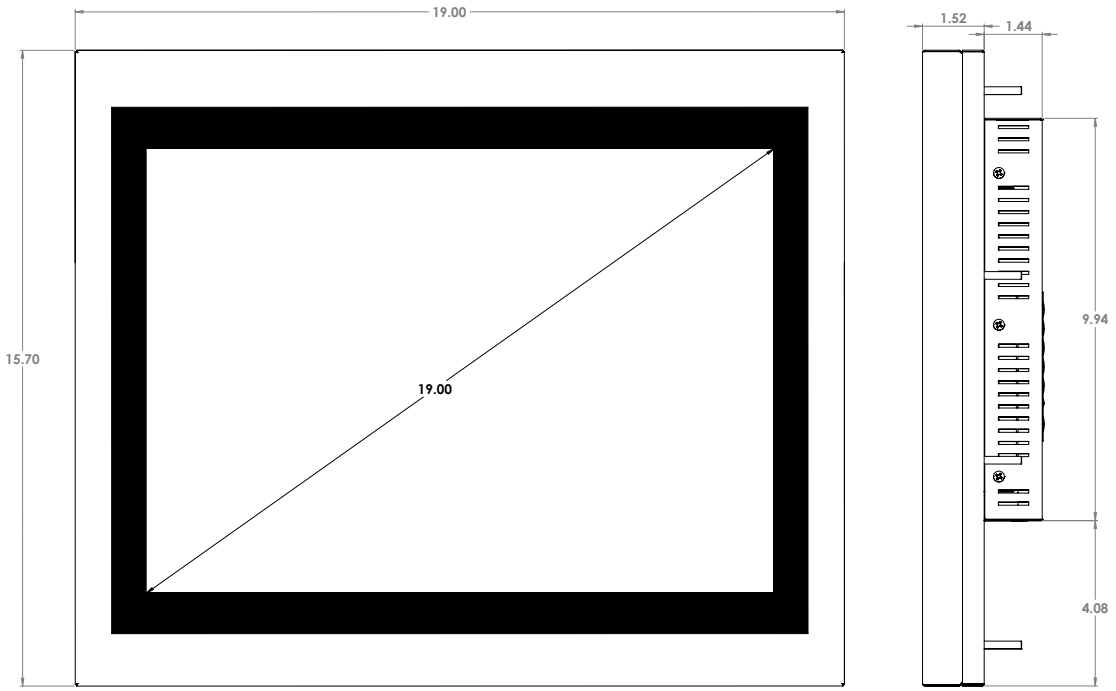

Figure 26: Display and Enclosure Dimensions

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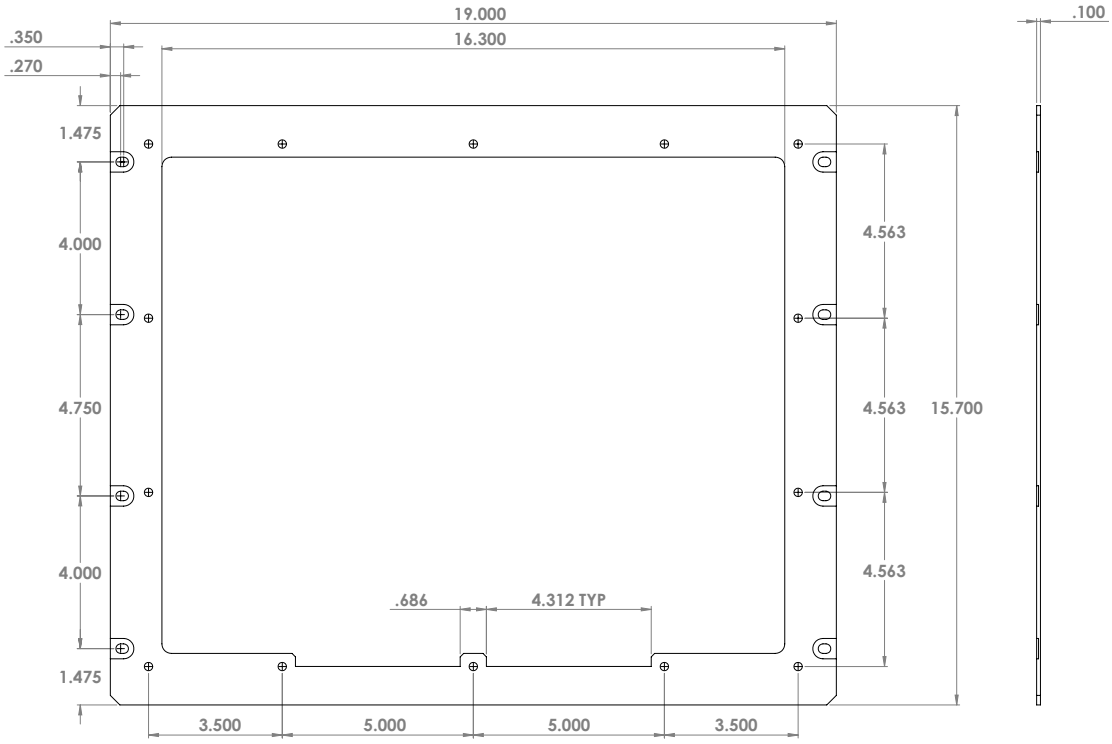

Figure 27: Landscape Mounting Plate Dimensions

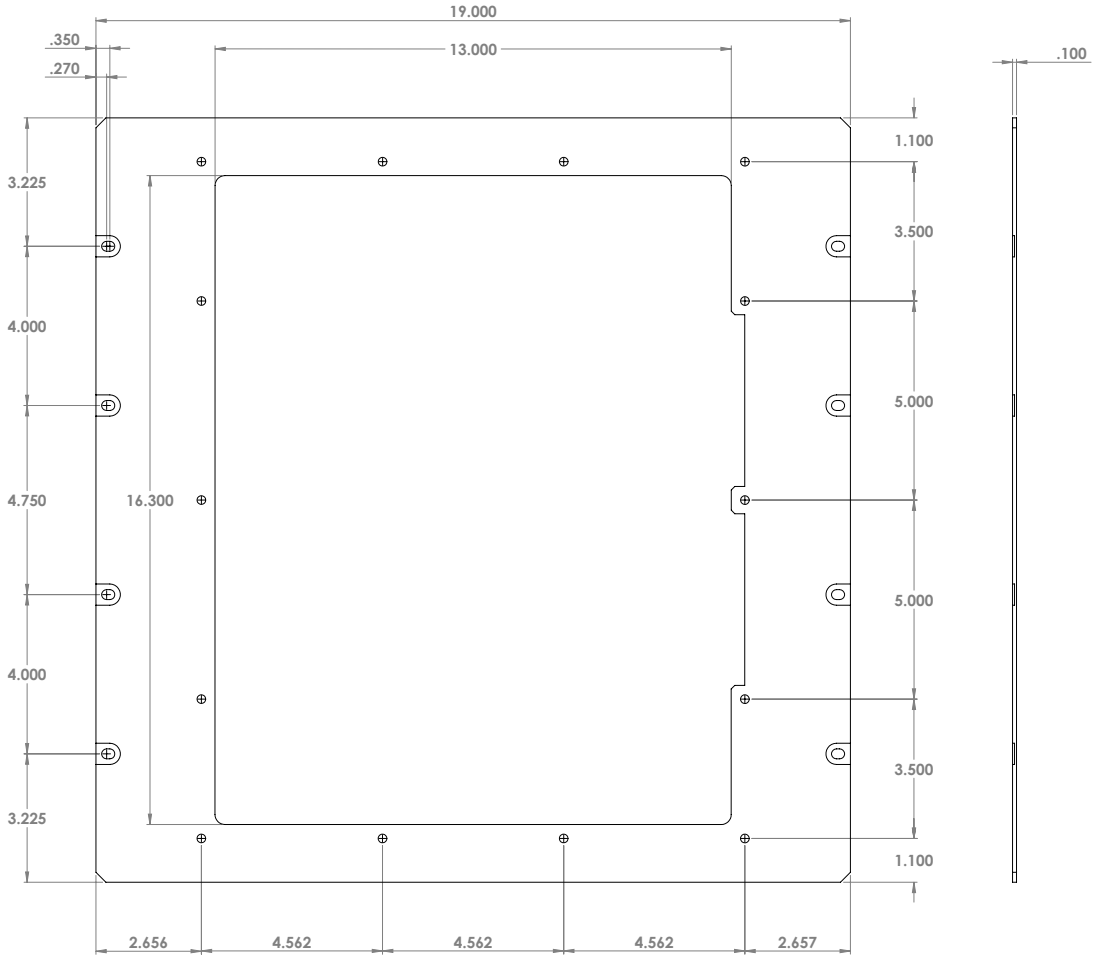

Figure 28: Portrait Mounting Plate Dimensions

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Product Service

Diagnosis and Debug

CyberResearch, Inc. maintains technical support lines staffed by experienced Applications Engineers and Technicians. There is no charge to call and we will return your call promptly if it is received while our lines are busy. Most problems encountered with data acquisition products can be solved over the phone. Signal connections and programming are the two most common sources of difficulty. CyberResearch support personnel can help you solve these problems, especially if you are prepared for the call.

To ensure your call's overall success and expediency:

1) Have the phone close to the PC so you can conveniently and quickly take action that the Applications Engineer might suggest.
2) Be prepared to open your PC, remove boards, report back-switch or jumper settings, and possibly change settings before reinstalling the modules.
3) Have a voltmeter handy to take measurements of the signals you are trying to measure as well as the signals on the board, module, or power supply.
4) Isolate problem areas that are not working as you expected.
5) Have the source code to the program you are having trouble with available so that preceding and prerequisite modes can be referenced and discussed.
6) Have the manual at hand. Also have the product's utility disks and any other relevant disks nearby so programs and version numbers can be checked.

Preparation will facilitate the diagnosis procedure, save you time, and avoid repeated calls. Here are a few preliminary actions you can take before you call which may solve some of the more common problems:

1) Check the PC-bus power and any power supply signals.
2) Check the voltage level of the signal between SIGNAL HIGH and SIGNAL LOW, or SIGNAL+ and SIGNAL– . It CANNOT exceed the full scale range of the board.
3) Check the other boards in your PC or modules on the network for address and interrupt conflicts.
4) Refer to the example programs as a baseline for comparing code.

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Warranty Notice

CyberResearch, Inc. warrants that this equipment as furnished will be free from defects in material and workmanship for a period of one year from the confirmed date of purchase by the original buyer and that upon written notice of any such defect, CyberResearch, Inc. will, at its option, repair or replace the defective item under the terms of this warranty, subject to the provisions and specific exclusions listed herein.

This warranty shall not apply to equipment that has been previously repaired or altered outside our plant in any way which may, in the judgment of the manufacturer, affect its reliability. Nor will it apply if the equipment has been used in a manner exceeding or inconsistent with its specifications or if the serial number has been removed.

CyberResearch, Inc. does not assume any liability for consequential damages as a result from our products uses, and in any event our liability shall not exceed the original selling price of the equipment.

The equipment warranty shall constitute the sole and exclusive remedy of any Buyer of Seller equipment and the sole and exclusive liability of the Seller, its successors or assigns, in connection with equipment purchased and in lieu of all other warranties expressed implied or statutory, including, but not limited to, any implied warranty of merchant ability or fitness and all other obligations or liabilities of seller, its successors or assigns.

The equipment must be returned postage prepaid. Package it securely and insure it. You will be charged for parts and labor if the warranty period has expired.

Returns and RMAs

If a CyberResearch product has been diagnosed as being nonfunctional, is visibly damaged, or must be returned for any other reason, please call for an assigned RMA number. The RMA number is a key piece of information that lets us track and process returned merchandise with the fastest possible turnaround time.

PLEASE CALL FOR AN RMA NUMBER!

Packages returned without an RMA number will be refused!

In most cases, a returned package will be refused at the receiving dock if its contents are not known. The RMA number allows us to reference the history of returned products and determine if they are meeting your application's requirements. When you call customer service for your RMA number, you will be asked to provide information about the product you are returning, your address, and a contact person at your organization.

Please make sure that the RMA number is prominently displayed on the outside of the box.

• Thank You •

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